

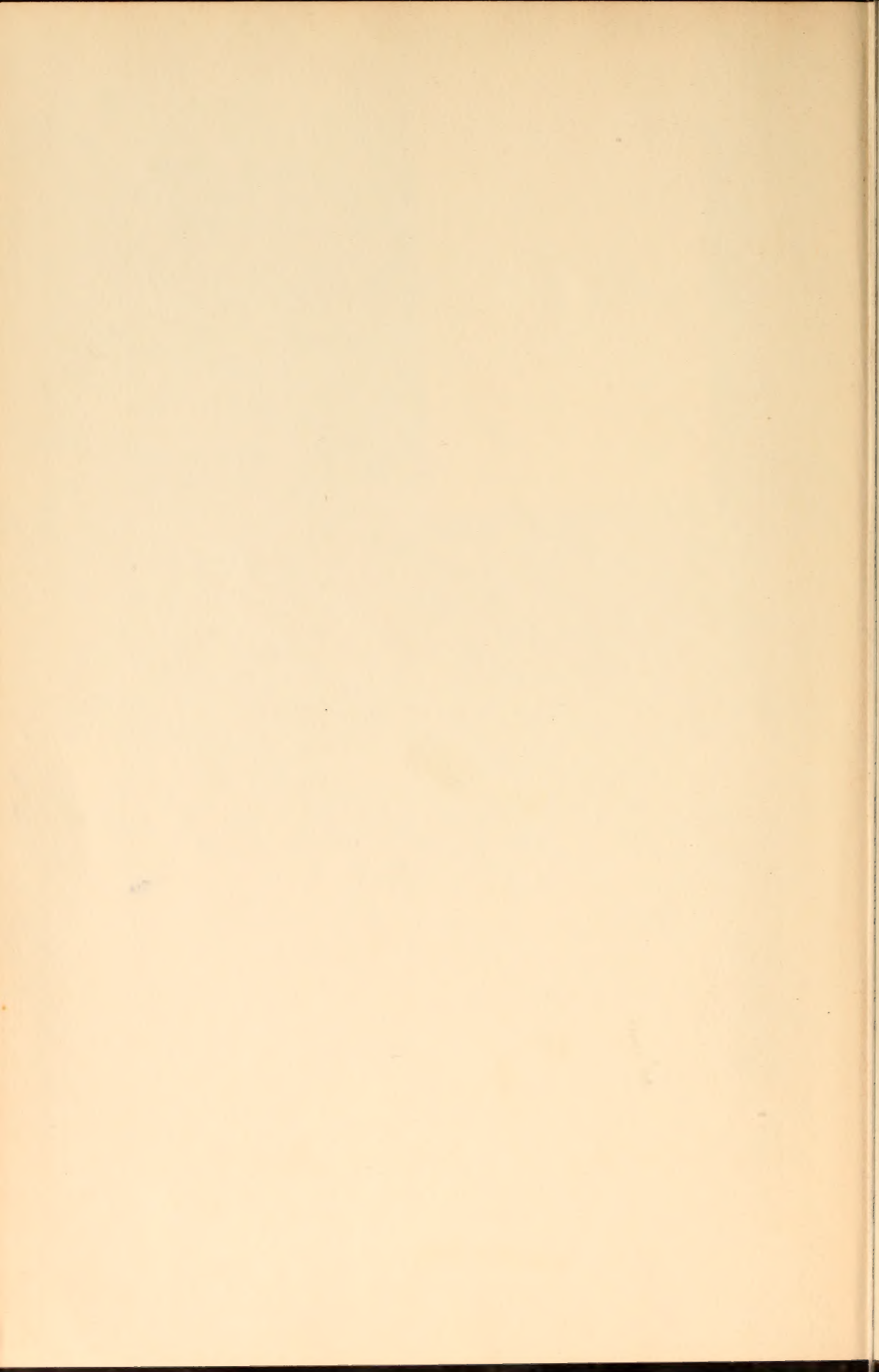
THE BOOK
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The
BOOK *of* KNOWLEDGE

The Children's Encyclopedia

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KEY TO ILLUSTRATIONS OF THE FINE ARTS

Painting, Sculpture and Architecture

GRADED COURSES OF STUDY

With an Introduction by
Angelo Patri

SCHOOL-SUBJECT GUIDE

A Complete Analysis of the Work

VOLUME XX

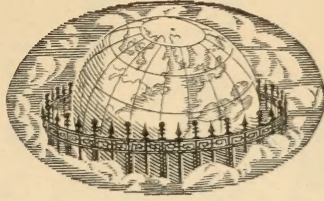
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The Index Volume of The Book of Knowledge is a short cut to the rapid use of the set of books. It contains a General Index and a Poetry Index, with full explanation of their use; a School-Subject Guide which analyzes the contents of the nineteen volumes for convenient use in school work; Graded Courses of Study with inspiring talks to the Children, the Parents and Teachers, by Angelo Patri; two important historical documents, the Declaration of Independence and the Constitution of the United States, to which every student of American history must frequently refer; also useful tables of weights and measures, and easy rules of reckoning in rapid calculations.

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DIRECTIONS FOR USING THE INDEX

WITH this index, you can quickly find the information on any subject that is in *The Book of Knowledge*. The subjects are arranged alphabetically, like the words in a dictionary, and are printed in black type. The parts of each subject are printed below it, in ordinary type, and indented or set to the right a little. Usually these topics under the main subject are arranged alphabetically, but in some cases the most important articles are placed first. Often parts of these main articles are also indexed below under their topics.

Whenever there is a line of entries indented, or moved to the right, it is understood that they all belong under the entry above. For instance, under the word *Agriculture* are several entries set a little to the right, including the entry *Regions*. Set to the right under this are names of regions. One of these is the entry *England*. Under this are several entries, still more to the right. This means that they are all about England only. Under *France* you will find main subdivisions, such as *description*, *history*, etc.; and under each of the main divisions you will find its subdivisions. Look under *France* and see if you understand the arrangement.

When you want to find a subject, look under its exact name, not under the large group to which it belongs. For instance, if you want to find *Violets*, look under that word, not under *Flowers*. Under *Flowers* are general articles about several kinds. For material on any person, look under his name; for places or countries, look under their names.

The figures after the entries tell the volume and page where you will find material. The volume number is printed in blacker type. If there is material on several pages in a volume, they are all given. If the article extends over more than one page, the first page is given, and the last one, in shortened form. For instance, 13-4570-73 means vol. 13, pages 4570 to 4573. If more than one page is given, with a comma between, it means to look on each page, but not on the ones between. For instance, 13-4570, 4573, 4579 would mean to look on those three pages only.

In arranging entries, all the entries beginning with one word are put together, before any of a longer word that begins with the same letters. For instance, all the entries beginning with *In* come before all those beginning with *Into*; all those beginning with *The* come before those beginning with *There*. In the

arrangement of entries, a word with a hyphen is treated as if it were two words. For instance, *Sea-gull* is arranged as if it were *Sea gull*, and it goes with the entries beginning with *Sea*.

Sometimes there are two words for a subject or a person, and we have put all the index entries under one of them. In that case, we put an entry under the other word, telling where the material is. For instance, the author S. L. Clemens called himself, when he wrote, Mark Twain. We have put the entries under his real name, and have said, under Twain, "Twain, Mark, *see* Clemens, S. L." This means, "Look under Clemens." We have done the same for flowers that have several names, and in other cases. Such an entry is called a "see reference," and it means, "Look in the other place."

Sometimes you may not find all you want about a subject in the entries under it, and would like to look further. There may be other subjects that are similar, where you could find what you want. To help you find these, we have sometimes put in an entry which says, "*See also*" and then gives other good places in which to look. This means "Look also under these other subjects, and you may find more information." For instance, under *Antarctic regions*, we have said "*See also* South Pole."

If you want a list of stories, look under the word *Stories*, where you will find a general list, and then special kinds. For fairy tales, look under *Fairy tales*; and for myths, under *Myths and legends*.

Poems about a subject, questions, and pictures illustrating it, are all listed after the other entries. You will find it interesting to read over some of these questions, and if you do not know the answers to look for them. The word (gravure) after a picture means that it is reproduced by the gravure process, which makes an especially good picture. If the picture is in color, that is noted. All pictures are entered under artist as well as under subject.

The most important articles are marked with a star (*).

Remember that the first figure, in black type, gives the volume, and the other figure gives the page.

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The Poetry Index, following the General Index, gives authors, titles, and first lines of poems. Directions for using it are given at its beginning. Poems are also entered under their subjects in the main index. For instance, if you wish to find a list of the poems by Tennyson, look in the Poetry Index. If you wish to find the poems about flowers, look under the word *Flowers*, in the main index.

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Acre. Coast town of Palestine which was besieged and captured from the Saracens in 1191 by the Crusaders under Richard I. In 1799 the Turks, aided by British sailors under Sir Sidney Smith, resisted Napoleon's efforts to capture it. siege of in 1191, 7-2587-88
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- Adelaide**, song, account of, 10-3612
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- Adenoids**. A term applied to an excessive growth of spongy tissue in the region above the soft palate, the nasopharynx. It causes such a narrowing of the air passage that breathing through the nose is difficult and a congested condition of the mucous membrane lining the nose and throat occurs. Treatment consists in early and complete removal of the growth, preferably under a general anæsthetic. Many children have this defect.
- Adjutant stork**, *see* Marabou
- Admetus**, king of Thessaly, and Alcestis, 8-2703
- Admirable Crichton**. Name given to James Crichton, a Scotsman of the 16th century, who, though assassinated at Mantua at the age of 22 or 24, had a romantic career and was a distinguished Latin scholar. The Admirable Crichton is the title of a comedy by Sir J. M. Barrie.
- Admiral** (from Arabic *amir*, commander, *al*, the Arabic article). The term is said to have been introduced into Europe in the 12th or 13th century. It is now used for the commander-in-chief of a navy. In the British navy admirals
- Admiral** (*continued*)
 are of four grades, in the United States of three.
- Adonis**. A beautiful youth beloved by Venus, or Aphrodite, born of a myrrh tree, who in his youth was slain by a wild boar. So great was Aphrodite's grief that the gods required him to spend only half or a third of the year in Hades. The legends about Adonis have sprung from the rites of the Adonia, a festival celebrated in midsummer.
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Afghanistan. Independent Moslem state on the Indian northwest frontier; area, about 250,000 square miles; capital, Kabul. The people are warlike and industrious, and are ruled absolutely by an Amir; agriculture and silk, woolen and carpet manufactures are their chief pursuits. Three-quarters of the country is mountainous, the chief trade highway to India being by way of the Khyber Pass. Kandahar and Herat, which was founded by Alexander the Great, are the principal towns.

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Afghans. The inhabitants of Afghanistan, who are not fused in a single nationality, but are a collection of tribes of Caucasian origin held together by the paramount tribe—the Durani of Kabul.

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Agnes, St. Patron saint of purity; in January, 304, during the reign of Diocletian, she suffered martyrdom at the age of 13.

Agnostic. One who professes ignorance of the existence of God. The word was coined in 1869 by Thomas Huxley, and among English-speaking philosophers Herbert Spencer is the best-known agnostic.

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Agram, or Zagreb. Capital of Croatia, Jugo-Slavia, with a splendid Gothic cathedral and a large agricultural trade.

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Agriculture. The tilling, or cultivation, of the ground. The term is especially applied to large areas used to supply food for man and beast. The theory of agriculture treats of different soils, plants and seeds, manures, rotation of crops, etc. It involves a knowledge of chemistry and geology.

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Agriculture, Department of

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Agrimony, Hemp, see Hemp agrimony

Agrippina the Elder. Wife of Germanicus and mother of the Roman emperor Caligula; died A.D. 33.

Agrippina the Younger, mother of Nero, 5-1862

Picture, bust of, 5-1862

Aginaldo, Emilio. Leader of Filipino insurrections against Spain and the United States. A well educated Chinese *mestizo* (mixed blood) who was exiled from the Philippines by Spain for his part in the rising of 1896. In 1899 he assumed the offensive against the United States, was captured, in 1901 took the oath of allegiance and retired from public life.

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Aguti, animal

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Ah Sam, and arctic exploration, 13-4715

Ai, three-toed sloth, 7-2394

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Albonito, Porto Rico

Picture, 10-3593

Aida. In Verdi's opera of this name an Ethiopian princess who, enslaved by the Egyptians, dies with her lover when he is entombed alive.

Aidan, missionary from Ireland, 8-2930

Ainsworth, William Harrison, English novelist, 11-3891-92

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 Why are miners not killed by bad air? 2-460
 Why does damp air make us ill? 12-4400
 Why does the air not stop the light of the sun? 15-5620

Air-brake, invention of, 19-7212

Air-cells, in lungs, function, 4-1328

Air plant, or *epiphyte*. A plant which grows upon other plants but is not a parasite, as it derives its sustenance from the air. In the temperate regions many mosses, lichens and algae assume this habit; in the tropical regions, ferns and orchids.

Air-pump, invention of, 4-1244

Aira, grass

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Airedale terrier

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Airy, George Biddell, British astronomer, 1-284

opposed submarine cable, 12-4294

Picture, portrait, 1-281

Aisne. Tributary of the French Seine. It rises in the Argonne and flows past Rethel and Soissons to join the Oise at Compiègne. The country around it was one of the famous war areas during the World War, 1914-18.

Aix. Ancient French city, formerly capital of Provence. The Romans built baths round its warm springs in 123 B.C., and the baptistry of its 11th-century cathedral is believed to have been a temple of Apollo.

Aix-la-Chapelle (Aachen), account of, 12-4170
 cathedral, 16-5725

Picture, cathedral, 16-5723

Aix-les-Bains. French watering-place in Savoy, in a beautiful valley near Lake Bourget. Its warm springs have been famous since Roman times; the Arch of Campanus and ruins of a Roman temple and bath are still to be seen.

Ajaccio. Capital of Corsica, with a considerable trade and a large harbor. The birthplace of Napoleon, it has a 16th-century cathedral.

Pictures, 11-3315

Akbar, Indian ruler, 8-2824

Picture, portrait, 8-2821

Akhenaten, king of Egypt, *see* Amenhotep IV

Akkad, *see* Chaldæa

Akron. City of Ohio, leading the world in rubber manufacture, automobile tires, hose, rubber bands, etc. Pottery also important.

Akyab, Burma

Picture, mosque (gravure), 15-5478

Alabama. Southern state; area, 51,998 square miles; capital, Montgomery. Cotton, corn, oats, wheat and sweet potatoes are produced. Birmingham is a centre of the coal and iron industry, and cotton is manufactured. Mobile is the chief port. Abbreviation, Ala. Nickname, "Cotton State." State flower, goldenrod. Motto, "Here we rest." First settlement, near Mobile Bay, 1702.

described in the Southern States, 13-4517-28;
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marble quarry, 13-4528

Wilson dam, 7-2312

Alabama, ship

Picture, battle with Kearsarge, with note,

7-2435

Alabama Claims. Claims made by the United States upon Great Britain for damages done to American shipping in the Civil War by privateers. One of the privateers, the *Alabama*, was a flagrant offender against the laws of neutrality. A court of arbitration meeting at Geneva in 1871-72 allowed claims to the amount of \$15,500,000.

Alabama River. Its source formed by the junction of the Coosa and Tallapoosa rivers, Alabama. Flows into the Mobile River. 350 miles.

Alabaster, principal mines in Italy, 13-4572

use in Gothic sculpture, 13-4853

Picture, of workmen, 13-4571

Alamance Creek, Battle of, 1771, 4-1162

Alamo, San Antonio, Texas, story of, 18-6826, 6829

Picture, 18-6829

Aland Islands, belong to Finland, 18-6461

Alarcon, Hernando de. Spanish navigator who in 1540, in command of an expedition for Colorado, reached the Colorado River and the Grand Canyon.

Alaric. West Gothic king and conqueror; born, Peuce on the Danube, probably 370; died, Cosentia, Italy, 410; sacked Rome, 410.

Alaska

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mail-carrier uses reindeer, 8-2653

sunrise over Tanana River, 10-3582

Albania, account of, 17-6348

history, since 1912, 18-6462-63

Albany. Capital of New York State, on the Hudson. Formerly a Dutch settlement. It has two cathedrals and a magnificent Capitol. It is an important manufacturing city.

Capitol, note and picture, 11-3779

founded 1615, 2-550

Albatross, bird, account of, 11-4126

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Albemarle, 1st duke of, *see* Monk, George

Albert I. Became king of the Belgians in 1909. The younger son of Philip, Count of Flanders. Married Princess Elisabeth of Bavaria; three children: Leopold, Duke of Brabant (born 1901); Charles, Count of Flanders (born 1903); and Marie José (born 1906). During the World War he was the centre of the active defense of his country; in the general offensive of October, 1918, commander of the northern army groups, consisting of Belgians and French. After the armistice he organized improvements in the country and studied world-trade conditions to find outlets for Belgian commerce by visiting other countries.

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- Albert Memorial.** Standing in Kensington Gardens, London, this monument was erected to Albert, the Prince Consort of Queen Victoria. Its base is flanked with sculptures of the most famous figures in science and art.
- Albert Nyanza, Lake,** one source of Nile discovered by Baker, 2-471
- Alberta.** Westernmost of the Canadian prairie provinces; area, 255,000 square miles; capital, Edmonton. Once a ranching district, it now produces vast quantities of grain besides being the chief coal-mining province in the Dominion. Calgary is the largest town.
became province of Dominion of Canada, 4-1490
coal beds of Cretaceous period, 5-1660
sheep ranch, 15-5575
- Albertus Magnus.** German philosopher and monk. Born, Lauingen, Swabia, about 1206; died, Cologne, 1280. Translated Aristotle's works.
- Albi,** France, cathedral, 11-3820; 17-6160
Picture, cathedral (gravure), 17-6172
- Albion**
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Why did the ancients call England Albion? 16-5741
- Albumen,** hardens when boiled, 13-4827
in egg, 8-2872
- Albumins,** digestion of, 6-2085
- Alcala.** Famous old Spanish cathedral city near Madrid. It contains the Colegio de San Ildefonso, once a famous university, and was the birthplace of Cervantes.
- Alcazar**
Question about
What does the word Alcazar mean? 9-3356
- Alcazar,** Seville, *see* Seville
- Alcestis,** wife of King Admetus
sacrifice of, 8-2703-07
- Alchemy.** Chemistry in the Middle Ages wherein the great object was the transmutation of the baser metals into gold, the discovery of a cure for diseases, and the means of indefinitely prolonging life.
- Alcibiades,** Greek leader, 2-706
Picture, portrait, 2-701
- Alcock, John,** aviator, 1-178
- Alcohol** (C₂H₅OH). A liquid, ethyl hydrate formed by the fermentation of watery sugar solutions. Methyl alcohol comes from the destructive distillation of wood. Pure alcohol is a colorless liquid of spirituous smell and burning taste. It is used as a solvent in the arts and in medicine. Different kinds of alcohol sometimes named according to their source, as grain alcohol, root alcohol and moss alcohol.
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- Alcohol thermometer,** 7-2648-49
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Picture, home in Concord, 14-5007
- Alcuin,** English scholar, life and influence, 14-5248
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- Aldebaran,** star, 11-3786, 3924
- Alden, John.** One of the Pilgrim Fathers who came to America in the Mayflower. He was born in England in 1599 and was a cooper by trade. He settled in Duxbury, Mass. In 1621 he married Priscilla Mullens. He was a magistrate in the new colony for more than 50 years and outlived all his fellow voyagers on the Mayflower.
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- Alden, Margaret H.,** *see* Poetry Index for poem and note
- Alder, White,** shrub called clethra, 15-5608
- Alder trees,** description and pictures, 11-4102
- Alderney.** Northernmost of the Channel Islands, lying 8 miles from Cape de la Hague, in Normandy. Area, 1,962 square miles. It has a valuable breed of cows.
- Aldobrandini Marriage,** Vatican Museum, Rome, Greek wall-painting, 2-451
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- Aldrich, Thomas Bailey,** American author—
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See also Poetry Index for poem and note
- Aldus Manutius,** *see* Manuzio, Aldo
- Ale-hoof,** name for ground-ivy, 14-4979
- Alençon.** Pleasant old French town in Normandy, with a 16th-century Gothic cathedral and a famous manufacture of point lace.
- Aleppo.** Syrian city trading in silk, cotton, wool, leather, rugs, tobacco, oil, wine and fruit.
Pictures, 18-6669, 6679
- Alert,** ship, captured by the Essex, 5-1704
- Alessandria.** Cathedral city and fortress of Piedmont, Italy, manufacturing macaroni, silk and textiles.
- Alessandro Filipepi,** *see* Botticelli, Sandro
- Alessi, Galeazzo,** Italian architect, 17-6299
- Aletsch glacier,** Switzerland, 7-2316
- Aleutian Islands.** Chain of about 150 volcanic islands, belonging mostly to Alaska, at the southern end of the Bering Sea. Reindeer, dogs, foxes and seals are found here.
See also 10-3584
- Aleuts.** Natives of the Aleutian Islands, North Pacific, belonging to the Eskimo stock of the North American Indians.
- Alewife,** herring, 16-5776
- Alexander I,** tsar of Russia, 16-5694
- Alexander II,** tsar of Russia, 16-5694
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- Alexander III,** tsar of Russia, 16-5696
- Alexander III,** king of Scotland, 12-4208
- Alexander the Great,** king of Macedon
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- Alexander, Sir William,** received grant of Nova Scotia, 2-682
- Alexander Archipelago,** Alaska, 10-3584
- Alexanders,** flowers
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- Alexanderson, E. W. F.,** and radio inventions, 17-6368
- Alexandra, Caroline Marie Charlotte Louise Julie** (1844-1925). Late dowager queen of England. Born at Copenhagen, the daughter of Christian IX of Denmark. Married Albert Edward, Prince of Wales, in 1863, had three sons and three daughters. Became queen of England when Albert Edward succeeded to the throne (1901) and reigned with him until his death in 1910. Mother of George V, present king of England.
- Alexandria,** Egypt, founded by Alexander the Great, 3-820-21
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- Alexandrite.** *Picture* (in color), facing 19-7225
- Alfalfa,** or lucerne, fodder plant, 7-2412
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- Alfonso I,** king of Portugal, 14-5183
- Alfonso II,** king of Portugal, 14-5183-84
- Alfonso III,** king of Portugal, 14-5184

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- Alfonso XIII** (1886-). King of Spain, the posthumous son of Alfonso XII and of Maria Christina, Archduchess of Austria, who became regent during his minority. Early reign marked by troubles abroad and dissatisfaction at home. War against the United States deprived Spain of colonial empire. He took the reins of government in 1902. Married Princess Ena in 1906, granddaughter of Queen Victoria. Several attempts to assassinate him were made.
- Alfred the Great**, king of England
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- Alfred**, ship, first carried Congress Colors, 19-7182
- Algæ**, group of plants
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- Algeciras**. Nearest town in Spain to Gibraltar and first to be taken by the Moors. Here in 1906 an international conference for the regulation of Moroccan affairs was held.
- Alger**, **Horatio**, books for children, *14-5014
- Algeria**, conquered by French, 1830, 2-467
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 struggle against France under Abd-el-Kader, 4-1255
See also Algiers
- Algiers**, city in Algeria, 11-3824
 became French possession, 10-3572; 18-6808
- Algoa Bay**. Sheltered South African roadstead containing the harbor of Port Elizabeth. Bartholomeu Diaz landed here in 1488.
- Algol**, star, 11-3926
Picture, 11-3923
- Algonquin Indians**. The most important linguistic stock of the North American Indians. They include the Blackfoot, Ojibwa, Micmac, Abnaki, Delaware, Cheyenne, Arapaho and many other tribes. They occupied the territory from Labrador to the Rocky Mountains, with the exception of the territory of the Iroquoians. Champlain aided against Iroquois, 2-680
- Alhambra**, palace in Granada
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Pictures, 15-5465, 5467, 5469; (gravure), 15-5473-76
- Ali Baba and the Forty Thieves** (story), 2-537-38
- Alibi**. From Latin *alius*, other. In law, the plea of having been, at the time of the commission of an act, elsewhere than at the alleged place of commission.
- Alicante**. Important Spanish Mediterranean port, exporting esparto grass, lead, wine, fruit and almonds.
- Alice in Wonderland**, by Lewis Carroll
 summary and quotations, with pictures, 3-1089-98; 4-1174-86, 1233-42
- Alien**. A person owing allegiance to another state, used in contradistinction to a citizen. An alien may become a citizen by naturalization. Aliens do not possess political rights, nor are they subject to the political duties of a citizen. In the United States they are admitted by quota. In Canada admission is selective.
- Alien Laws**, U. S., under John Adams, 5-1702
- Alimentary canal**
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- Alishan**, **Leon**, *see* Poetry Index for poem and note
- Alkalies**, chemical characteristics, 12-4405-06
- All Saints' day**, a holiday in Louisiana, 6-2094
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- Allahabad**. Capital of the Indian United Provinces, at the junction of the Ganges and Jumna. A railway, commercial and printing centre, it has two cathedrals, and manufactures indigo. Here is the Pillar of Asoka.
- Allegheny Mts.** Low range running parallel to the east coast of the United States for 1,300 miles. Height from 1,500 to 5,000 feet. Here are great coal-fields.
- Allegheny River**. American river. Rises near Raymond, Penn. Flows into the Ohio River. 350 miles.
- Allelulia**, name for wood sorrel, 18-6570
- Allen**, piano-maker, 5-1796
- Allen, Ethan** (1737-89). American soldier born in Connecticut, but a resident of Vermont. captured Fort Ticonderoga, 4-1164; 6-1906
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- Allenby, Edmund, Viscount**. English field-marshal; born, 1861; conquered Palestine, 1918.
- Allerton, Ellen P.**, *see* Poetry Index for poem and note
- Alligator-wood**, comes from sweet-gum, 12-4510
- Alligators**, account of, 14-5229
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- Allingham, William**, *see* Poetry Index for poems and notes
- Alliteration**, explanation, 17-6265
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- Alloy**. An artificial compound of two or more metals combined while in a state of fusion. Copper and tin thus fused form the alloy bronze; and lead and antimony form the alloy known as type-metal. An artificial metallic mixture containing quicksilver is called an *amalgam*.
- All's Well that Ends Well**, by Shakespeare
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- Allspice**, account of, 8-2992
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- Allston, Washington**, American painter
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- Allward, Walter S.**, Canadian sculptor, 14-5078
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 Baldwin-Lafontaine monument, 14-5080
 South African Memorial, 14-5077
- Alma, Battle of the**. First battle in the Crimean War, fought in 1854 between 35,000 Russians and 30,000 French and 25,000 British. The allies just succeeded in capturing the heights beyond the river Alma.
- Alma mater**. Term commonly applied to the university or college where a man or woman has been trained. The phrase is Latin and means "kind mother."
- Alma-Tadema, Miss Lawrence**, *see* Poetry Index for poems and notes
- Alma-Tadema, Sir Lawrence**. English classical painter; born, Dronryp, Holland, 1836; died, Wiesbaden, Germany, 1912.
- Almagro, Diego del**, friend of Pizarro, 19-6861
- Almanacs, Nautical**, 2-457
- Almeria**. Cathedral city and port on the Spanish southeast coast. In Moorish times it was the next richest city after Granada.
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- Almonds**, account of, 6-2275
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- Alpaca**, fleece-bearing llama, 5-1600
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- Alpha Centauri**, star, 9-3034, 3039; 11-3783-84
- Alphabet**
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- Alpheus**, in mythology, 9-3236
- Alpine plants**, characteristics, 15-5601
- Alpine races**. Branch of the white race that are typically round-headed; they are not so white in complexion as the Nordic, nor so dark as the Mediterranean branch of the white race. The Slavs are typically Alpine.
- Alps**, description, 16-5997-98, 6003; * 17-6083-89
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 Maloja Pass and Mont Blanc, 6-2174
 Mer-de-glacé, near Chamonix, 11-3819
- Alps, Australian**. Mountain range in New South Wales and Victoria, containing Mount Kosciusko, 7,340 feet.
- Alps, Southern**, New Zealand, *see* Southern Alps

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Alsace-Lorraine. Old province of France, between the Vosges and Rhine. Formerly a confederation of independent towns, it was occupied by France in 1648, after the Thirty Years' War, remaining French up to 1871, when it was taken by the Germans. In 1918 it was again occupied by France. Strassburg, the capital, Mulhouse, with important cotton manufactures, and Colmar are the principal towns.

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Picture, girl, showing head-dress, 11-3817

Altai Mts., Asia, 18-6586

Altamira, Spain, cave drawings, 1-196

Alteration of generation, in plants, 3-884

Alternative vote. System of voting for more than one candidate at elections. Each voter marks his ballot paper with 1, 2, and so on, against the names on the list, 1 being his first choice and 2 his second. The system secures fairer representation of the will of the electors.

Altitude, effect on temperature, 8-2664

Altscheler, Joseph A., author, 14-5016

Aluminium or aluminium

account of, 9-3210
 bauxite, source of, 13-4526
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Alva, Ferdinand, Duke of. Spanish general; born, 1508; died, Thomar, Portugal, 1583; established the Council of Blood in the Netherlands.

Amadis de Gaula, medieval romance, 19-7126

Amalfi. Beautiful old city on the Gulf of Salerno, Italy, founded under Constantine the Great. Once a powerful republic. It has a fine Byzantine cathedral.

Amateur theatricals, stage and scenery, 16-5763

See also Plays for children

Amati family, violin-makers, 18-6700

Amazon River. Greatest river in South America and the world, draining an area of over 2,700,000 square miles if the Tocantins River basin is included. It rises in the Andes and flows 3,000 miles through Peru and Brazil into the Atlantic. In many places it is between four and six miles wide, while its chief tributary, the Madeira, almost rivals it in the volume of its waters. Though the Amazon is navigable for ocean steamers up to Iquitos, 2,300 miles from its mouth, the only important towns it passes are Manaos and Para. It is estimated that less than a million people live in its basin. Its dense jungles, or selvas, are flooded during the rainy season.

source and size of, 7-2538; 19-6863
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Amazomite, semi-precious stone

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Amazons, legendary women-warriors

in Greek sculpture, 12-4218
 story, Achilles and the Amazon queen, 1-53
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Ambassador. A diplomatic agent of the highest rank, who represents his country or his ruler to the government or at the court of another country.

Amber, flies in, 13-4824

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Ambergris, substance from whales, 6-2215-16

Ambrose, Saint, bishop of Milan

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Ameba, simplest form of life, 2-661-63

description of, for game, 8-2880, 3023

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Amen, a god of ancient Egypt

Picture, 3-816

Amen-Re, Great Temple of, 14-5212

Amendment. An alteration proposed to be made in the draft of a bill or motion before a meeting which has the power to vote. The amendment must be voted upon before the bill or motion is voted upon. Sometimes the passing of the amendment means the passing of the bill or motion; at other times an amendment entirely reverses the sense of the original bill or motion.

Amendments to U. S. Constitution, *see* United States—Constitution—amendments

Amenhotep III, king of Egypt, *see* Amenophis III

Amenhotep IV (Akhenaten or Khu-N-Aten),

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Amenophis III, king of Egypt, overcame

Euphrates valley, 2-654

Picture, statue (gravure), 11-3878

America, early inhabitants, 19-7133-34

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See also Central America; North America; South America; *also* names of countries

America, patriotic song of the United States, 18-6513

America Islands, coconuts chief product of, 9-3300

American Academy of Arts and Letters. This organization numbers fifty members elected from the membership of the National Institute of Arts and Letters, to which the qualification for entrance is "a notable achievement in art, music or literature." The first seven members of the American Academy of Arts and Letters were elected by ballot in 1904.

American blight, *see* Aphids—woolly

American Federation of Labor. A non-secret confederation of trade unions on the North American continent. Its object is to work for the improvement in the conditions and wages of labor. Founded in 1881, it now has a membership of 3,500,000 in its four departments, Building Trades, Metal Trades, Railroad Employees, and Union Label Trades.

American League, in baseball, 17-6141

American Legion, The. An organization composed of men and women who served honorably in the armed forces of the United States in the World War. It was first organized in Paris, France, in 1919, and now it has over 11,000 branches called posts, with a membership of over 600,000. The national headquarters of the Legion are in the War Memorial Building, Indianapolis, Indiana.

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Amherst, Jeffrey, Baron (1717-97). British

general, captured Montreal from French 1760.

Commander-in-chief and governor-general in

America, 1761.

Amicis, Edmondo de, author

Cuore, book, story from, 18-6482-84

Amiens. French cotton-manufacturing centre on the Somme. It has a noble cathedral, built in the 13th century, with a spire 426 feet high; other fine buildings are the town-hall and the Picardy museum. It was a battle centre during the World War. Amiens is an important railway centre.

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Ammonia. The popular name for the volatile alkali NH₃. It is a colorless gas, is soluble in water and has a pungent odor. It can be liquefied by pressure, and its density is about half that of air.

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- Among the snow-capped Alps**, * 17-6083-89
- Amoy**. Chinese port exporting sugar, camphor and paper.
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- Ampère, André Marie**. French physicist and mathematician, born, Lyons, 1775; died, Marseilles, 1836. He won fame for his discoveries in electrodynamics.
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- Amritsar**, India
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- Amundsen, Captain Roald**. Norwegian explorer and scientist. Born, Borge, Smaalene, Norway, July 16, 1872. Studied medicine for two years. Scientific studies in Germany. Leader in Amundsen-Ellsworth-Nobile Trans-Polar Flight which crossed from Spitzbergen to Alaska in May, 1926. Amundsen and Oscar Wisting, the only two men to reach both Poles. *See* Norge.
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- Amur**. River of Siberia and Manchuria, rising in the Yablonovoi Mountains and flowing into the Sea of Okhotsk. Draining over 770,000 square miles, it is free from ice from May to November, and has considerable fisheries. 1,700 miles.
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- Anarchism**. The doctrine of anarchists, who believe in the absence of government; a state of society in which there is no capable supreme power and in which the several functions of the state are performed badly or not at all, with the result that social and political confusion ensues.
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- Anaxagoras**. Greek philosopher; born, Clazomenæ, Asia Minor, about 500 B.C.; died, Lamp-sacus, Mysia, about 428.
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- Anaximander**. Greek philosopher; born, Miletus, Asia Minor, about 611 B.C.; died, about 547 B.C.; maker of the first map of the world.
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- Andamanese**. A primitive race of the Oceanic Negro family which inhabits the Andaman Islands in the Indian Ocean.
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 Annam. Formerly a Chinese possession in Indo-China, Annam was an independent state from 1428 to 1884, when it was occupied by the French; 89,753 square miles in extent, it produces rice, millet, silk and timber. The capital, Hué, is the chief port.
 Annapolis. A town in Nova Scotia. Name changed from Port Royal in honor of Queen Anne when Nicholson captured it from the French in 1710. It is the export town for the fruitful Annapolis Valley.
 Annapolis. Capital of the State of Maryland. It is located on the Severn River, two miles from Chesapeake Bay. Here is situated the United States Naval Academy.
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 Annexation. The act of adding, as a smaller thing to a greater; for instance, the annexation of Texas to the United States.
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 Anthony of Padua, St. Great preacher who is said to have converted many sinners. Born, Lisbon, 1195; died, Padua, 1231.

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- Anthony, Susan Brownell.** An American social reformer and a pioneer worker for woman suffrage, civil rights for women, and temperance. Born, South Adams, Mass., 1820; died, Rochester, N. Y., 1906.
- Anthracite coal, see Coal—anthracite**
- Antidote.** A counteracting power of any kind. It may be a medicine to counteract the effects of poison or disease; or it may be an influence which cures a mental outlook.
- Antietam, Battle of, 7-2434**
- Antigone,** legendary character, death of, 6-2008
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- Antigua.** West Indian island, forming with Barbuda and Redonda a Leeward Island presidency; area, 108 square miles; capital, St. John. Discovered by Columbus in 1493, it was settled by the British in 1632, and exports sugar, cotton, pineapples and molasses.
- Antilles,** name for West Indies, 19-7097
- Antimony (Sb).** A metal, white with a bright lustre, which does not tarnish easily. It is a conductor of both heat and electricity. Stibnite is an important ore of this mineral. Antimony is used to make alloys and in medicine.
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- Aorta,** largest artery, 4-1212
- Aosta.** Old city of Piedmont, Italy, in a beautiful valley below the Alps. It has well preserved Roman walls and remains of baths and an amphitheatre; its cathedral dates from the 14th century, and the church of Sant' Orso from the 5th century.
- Apelles,** painter, ancient Greece, 2-451
- Apennines.** Mountain range which traverses practically the whole length of Italy, being connected in the north with the Maritime Alps. Its highest peak in the peninsula is Monte Corno, 9,560 feet; but the range reappears in Sicily, where the huge Etna volcano rises to 10,870 feet. Vesuvius, 4,200 feet, is close to Naples.
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- Apoplexy.** The sudden loss of feeling and movement of the whole body, with the exception of respiration and circulation, caused usually by a hemorrhage of the brain. Sometimes it is due to blood-clots that interfere with the circulation of the blood either to or in the brain.
- Apostles.** Apostle means, literally, "one who is sent away on a mission." Christ used the word to designate twelve of his disciples sent forth to preach the gospel to the world. Afterward the word described other followers of Christ, for instance, Paul and Barnabas. In later days the word has been used to denote a person undertaking a special mission, for example, an apostle of freedom.
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- Appendicitis.** The medical term for inflammation of the appendix, a narrow tube about three inches long attached to the large intestine. From its closed end and worm-like shape the appendix is called "vermiformis."
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- April.** The fourth month of the year, containing thirty days. It was the second month of the Roman calendar. The name is supposed to come

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from the Latin *aperire*, to open, alluding to the season when the buds and flowers open. April was sacred to Venus, and it has been suggested that perhaps the name was originally *Aphrilis*, from *Aphrodite*, the Greek name of Venus.

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Aquinas, Thomas, St. Born near Aquino, Italy, about 1225; died near Terracina, 1274. A famous Italian philosopher and theologian. A member of the Dominican order, he taught at Cologne, Paris, Rome, etc. He has been called the "Father of Moral Philosophy."

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Aragon. Once a powerful Spanish kingdom, including the old provinces of Catalonia and Valencia; the Balearic Islands; and Naples, Sicily, and Sardinia, in Italy.

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Aral Lake. Inland sea in Turkestan, fed by the Amu Daria and Syr Daria rivers. Only slightly salt, it has an area of 26,233 square miles.

Aramaic language used by Jesus, 10-3474

Aran Islands. Three rugged islands lying across the entrance to Galway Bay in Ireland.

Ararat. Armenian mountain known to the Persians as Koh-i-Nuh, or the Mountain of Noah; 17,300 feet.

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Archangel. Arctic port of Russia, on the White Sea. It has large fisheries, and trades in flax, oats, tar, linseed, furs, tallow and timber between June and October.

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Argall, Samuel, expedition against Acadia, 2-682
Argand, Aimé, invented lamp, 3-996
Argentine, Second largest South American republic; area, 1,150,000 square miles. Capital, Buenos Aires. Famous as one of the world's chief granaries. Linseed and frozen meat are

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important exports. Cattle and sheep are numbered by the million. The chief towns are: Rosario, Cordoba, Tucuman, La Plata, Santa Fé, Mendoza and Bahia Blanca. Immigration, chiefly from Spain and Italy, is rapidly increasing the population.

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Argonauts. A band of legendary Greek heroes, led by Jason, who soon after the Trojan War sailed in the ship Argo to Colchis in search of the Golden Fleece. Aided by Medea, a dark witch-maiden, they killed the dragon guarding the fleece. Among the heroes on that wonderful voyage were Hercules, Castor and Pollux, Butes, Peleus and Orpheus.

Argonne. Wooded range of hills in northeast France, west of the Meuse. Famous for its position in the war area during the World War.

Argus, builder of Argo, **11-3912**

Argus, dog of Odysseus, **1-146**

Argyllshire, river in Scotland, harnessed, **15-5435**

Ari Thorgilsson, early Scandinavian writer, **19-7010**

Arica. Port of northern Chile, the terminus of a railway from La Paz, Bolivia. It exports copper, gold, silver, iron, sulphur, salt, guano and borax.

Ariel, sprite in *The Tempest*, **3-986**

Aril, name for mace, **8-2994**

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Arizona. Southwestern state; area, 113,956 square miles; capital and largest city, Phoenix. Rainfall is generally slight, and there are large desert areas, but irrigation from the Colorado River has brought prosperity to large districts. Cotton, wheat, corn, etc., are thriving crops. Minerals, especially copper, gold, rock-salt and lead, abound. Here is the Grand Canyon of the Colorado. Abbreviation, Ariz. Nickname, "Baby State," "Sunset State," or "Apache State." State flower, cactus. Motto, "Ditat Deus" (God enriches). "Arizona" comes from an Indian word meaning "few springs." First settlement, Yuma, 1854.

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Indian village, and mission, **18-6427**

Roosevelt dam, **7-2552**

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Arkansas. Cotton state on the Mississippi's right bank; area, 53,335 square miles; capital and largest city, Little Rock. After cotton, lumber and timber products are most important with coal, petroleum, lead and manganese mining next. Abbreviation, Ark. Nickname, "Bear State." State flower, apple blossom. Motto, "Regnat populus" (The people rule). Arkansas was the name of an Indian tribe living in the state. First settlement, Little Rock, 1690.

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Arkansas River. American river, rising in Rocky Mountains, Colorado. Flows into Mississippi River. Cuts through granite, making the beautiful Royal Gorge, nearly 9 miles long and 3,000 feet deep. 2,000 miles.

Picture, canyon of, Colorado, **18-6431**

Arkwright, Sir Richard, inventor of spinning machinery, **19-7202-03**

Aries. Ancient city of Provence, France, having been important in Roman times and earlier. Its Roman remains include the palace of Constantine, an aqueduct, baths, and an immense amphitheatre for 25,000 spectators. The Romanesque church of St. Trophime is very fine.

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Armadillos, account of, **7-2398**

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Armagh. County of Northern Ireland, manufacturing linen; area, 512 square miles; capital, Armagh.

Armature on magnet, **10-3581**

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Armenia. Russian dependency in the Caucasus, under Soviet government; area, 15,000 square miles; capital, Erivan. Ancient Armenia, which comprised parts of Turkey and Persia, existed as a kingdom from at least 600 B.C.; the Armenian Church is the oldest Christian church, having been founded about A.D. 300.

map, **13-4808**

song, Hymn to Liberty, by Nalbandian,

17-6253

Armenians. An Alpine race with some Semitic characteristics. This race is of quick intelligence, and its home is in the mountainous country round Mount Ararat in east Asia Minor.

Arminius. German chieftain and hero; born, 17 B.C.; died, A.D. 21; liberated Germany from the Romans under Varus.

Armistice. Mutual agreement by two belligerents to suspend warlike operations for a stated time. It frequently precedes peace negotiations, as in November, 1918.

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Arnica, plant, **8-2913; 18-6666**

Arno. River of Tuscany which passes Arezzo, Florence, Empoli and Pisa, flowing from the Apennines into the Ligurian Sea.

Arnold, Benedict (1741-1801). American general and traitor. He did brilliant service at Ti-

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 conderoga, Quebec and Saratoga, where he was severely wounded. After failure to betray West Point entered British army and afterwards lived in London.
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- Arpád**, Magyar leader, 17-6339
- Arras**. Ancient capital of Artois, France, once famous for its tapestry. It suffered severely during the World War, its fine cathedral and town hall being ruined.
- Arrest**. In the eyes of the law to arrest means to take into custody, or to seize by virtue of a legal warrant.
- Arrhenius Svante**, Swedish scientist, 13-4538
- Arrowhead**, plant, description, 16-5870, 5872
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- Arrowrock dam**, Idaho, 7-2546
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- Arrowroot**, plant
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- Arrows**, *see* Bow and Arrow
- Arsenic** (As). Found sometimes in a native state, but usually in combination with oxygen, sulphur and other elements. Realgar, orpiment and arseno-pyrite, or mispickel, are the chief minerals from which the arsenic of commerce is obtained. Arsenic is used in medicines, as a pigment in making paint, in making Paris Green.
- Arson**. The setting on fire purposely of any building or property with the intention of willfully causing destruction. In the eyes of the law arson is a crime.
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- Asafetida**, gum, account of, 8-2911
- Asbestos**. A fibrous mineral, usually of serpentine, but sometimes of tremolite composition. It will not burn and is a poor conductor of heat, so it is of commercial value as a fireproof material. The province of Quebec, Canada, provides the greater part of the world's supply.
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- Ashanti**. British West African district, since 1901 under the Gold Coast. Gold, rubber, cocoa, palm-oil, tobacco and mahogany are produced.
 account of, 9-3056
- Ashburton Treaty**, 1842. The treaty which settled the vexed question of the international boundary between Maine and Canada.
- Ashby-de-la-Zouch**. Leicestershire town, England, containing ruins of the castle made famous by Scott's Ivanhoe. Here Mary Queen of Scots was imprisoned.
- Ashley, Lord**, *see* Shaftesbury, 1st earl of (Anthony Ashley Cooper)
- Ashokan dam**, account of, 14-5055-56
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- Asia**. Largest of the continents, having an area of 17,206,000 square miles, or about one-third of the world's land surface. Geographically the most important feature of Asia is the lofty Pamir Plateau, from which radiate stupendous mountain ranges exceeding even the Andes in height. These include the Himalayan, Karakoram, Hindu Kush and Kwen Lun ranges. A vast area of the continent consists of lofty and sparsely populated tablelands, chief of which is the great plateau of Tibet, 10,000 to 17,000 feet high. On the other hand, the mountains give rise to a remarkable number of great rivers, and these have some of the most fertile and populous basins in the world. The population in the valleys of the Ganges and the Yang-tse-kiang is in many places denser even than in the in-

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dustrial districts of Europe. The vast plains of Siberia, however, are generally too cold to support a large population. Asia possesses a greater number of important islands than any other continent, notably the East Indies, the Japanese Empire, the Philippines, Cyprus and Ceylon. The agricultural wealth especially of China, India and the East Indies is enormous. Mineral wealth is exceedingly great and widespread. China has great stretches of coal-beds. The people of Asia may be divided into three main groups: the Caucasian in western Asia and India; the Mongolian in central and eastern Asia; and the Malay in the extreme southeast and in the East Indies. In addition, there are Dravida in southeast India and some Negrito tribes in the eastern archipelago, besides large numbers of Europeans in Siberia. Over half the population hold the Buddhist religion, or religions akin to it; there are over 100 million Mohammedans, and, in India, over 220 million Hindus.

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Asia Minor. Westernmost peninsula of Asia, forming part of the Turkish Empire. Though generally mountainous a great part of the country is exceedingly fertile, producing large quantities of cereals, fruit, cotton and tobacco. Smyrna, Broussa, Angora, Konia (Iconium) and Trebizond are the chief towns. Practically coincident with Anatolia.

Asir, Arabia, 18-6675-76

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Asphalt. A bituminous material used for floorings, pavements and roofs. The natural substance is asphaltum, which is widely distributed over the earth. The island of Trinidad has a lake of boiling pitch, or asphaltum. Artificial asphalt is made of refuse tar, slaked lime and gravel.

Asquith, Herbert Henry (Earl of Oxford and Asquith). English statesman. Prime minister of Great Britain 1908-16. Born, Yorkshire, 1852. During his ministry the Lords were deprived of their power of veto, the Home Rule Bill was passed, and Great Britain entered the World War.

Assam. Northeastern Indian province; area, 53,000 square miles; capital, Shillong. The tea-gardens here have an area greater than those of all the rest of India, while the rainfall averages 100 inches annually.

Assembly. The name given to the lower house of the legislature in several of the states of the United States and in some of the British dominions and colonies.

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Assessor. This term is applied usually to an officer who values, or *assesses*, property for the purpose of taxation. To carry on the government of a city or a township it is necessary to have money, and in most cases this money is raised by a tax on property. The assessor makes out a list of all property in his district and estimates its value; on his valuation the owner is taxed.

Assignment. A law term which means transferring, or making over, to another some real or personal property, or a right therein.

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Assisi, Italy, San Francisco, church, 17-6163

Picture, church of San Francisco (gravure), 17-6170

Associated Press. The largest and most powerful news collecting and distributing agency on the North American continent. It is made up of publishers of newspapers all over the continent who have banded together to exchange news. They have also reporters in important places all over the world to send news by cable or telegraph in to the head-office, where it is distributed to the newspapers that are members of the Association. The Associated Press does not admit all newspapers to membership, reserving the right to admit only a certain number in each city or district according to the population, and it does not sell its news service to non-members of the Association. The cost of maintaining the service is borne by all the members in proportion to the use made of it.

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See also Architecture, Assyrian; Sculpture,

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Asteroids, or planetoids. The small planets,

numbering more than 465, which lie between the

orbits of the large planets Mars and Jupiter.

Asters

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mammoth aster, 19-7180

ostrich plumed aster, 19-7179

Asters, Mountain, description, 18-6662

Astigmatism. A defect in the refracting apparatus of the eye so that rays of light entering

the eye do not meet in a point upon the retina,

but meet in a line. This is due to the fact that

the curvature of the cornea, and sometimes of

the lens, is not normal.

Astor, John Jacob (1763-1848). Born in Wal-

dorf, Germany. Emigrated in 1783 to New York,

where he went into the fur trade. In 1810

founded the Pacific Fur Company, which ex-

ploded and occupied Oregon "Territory."

Astragalus, bush, description, 9-3152

Astrakhan. Russian port near the entry of the

Volga to the Caspian. A dirty semi-Oriental

place, it is a centre of trade with the Near

East, and has a cathedral and some 40 Greek

churches. Its sturgeon fishery is famous.

Astringent. A medical substance which con-

tracts the tissues of the body and checks or

diminishes discharges of blood, mucus and other

secretions. Mineral astringents are alum, lime-

water, chalk, copper salts, etc.; and vegetable

astringents are oak-bark, galls, kino and tannic

acid.

Astrology. This meant originally "a knowledge

of the stars," but that definition now applies to

astronomy. The present-day use of the word

astrology is restricted to the prediction of

people's futures or of coming events from the

position of the heavenly bodies. It was prac-

ticed among Eastern peoples in the earliest days.

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Asuncion. Capital of Paraguay, on the Paraguay River. An important trading centre, it has a university and a cathedral.

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Atahualpa, Inca sovereign, 19-6862

Athabasca, district of Canada, 4-1490

Athabasca Lake. Between provinces of Alberta and Saskatchewan, Canada. Area, 2,842 square miles, the fourth largest lake in Canada. The Canada goose breeds here in large numbers.

Athabasca River. Canadian river, rising in Lesser Slave Lake. Flows into Lake Athabasca, province of Alberta. 765 miles.

Athabaskans, or **Athapascans**. One of the important linguistic stocks of the North American Indians, occupying the west-coast country from Alaska to northern Mexico. Among the tribes the stock are the Chippewas, Navajos, Apaches, Hupas and Lipans.

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Athenæum. In ancient days this meant a temple or a place dedicated to the goddess Athene (or Minerva). The most famous was an institution at Rome founded by Hadrian. Nowadays the word is used to denote an institution for the encouragement of art and literature.

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Atlanta. Capital and largest city of Georgia, trading chiefly in cotton and tobacco. One of the most important cities of the South, 1,000 feet above sea-level. An important Confederate centre in the Civil War.

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Atlas Mts. African range extending for 1,500 miles through Morocco, Algeria and Tunis. Its chief division is the Great Atlas, which contains the peak of Tagharat, 15,000 feet.

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Attachment. In law this is the taking of a person, goods or estate by a writ in a civil action to secure a debt, to compel a person to appear in court or to punish him for contempt.

Attainder. A legal term. Until comparatively recently a person who was outlawed for a capital offense, or a person who was condemned to death for treason, lost all the rights of citizenship, including his real and personal property and also the right to inherit property or to pass it on to his heirs. England abolished this law in 1870. In the United States the Constitution states that "no attainder of treason shall work corruption of blood, or forfeiture, except during the life of the person attainted." By "corruption of blood" is meant the punishment of the children for the father's sin through loss of their inheritance.

Attalus I, king of Pergamum, and sculpture of Pergamum, 12-4460, 4467

Attic salt. Sparkling, refined wit. The people of Athens and Attica had a reputation for correct and brilliant use of language.

Attica, peninsula of Greece, 3-1074

Attila, leader of Huns, 11-3960

Attorney-general. The chief officer of the law. In the United States and Canada the holders of the office of attorney-general are members of the cabinets of their respective countries. Each state in the United States and each province in Canada has its attorney-general for state or provincial law. In England the attorney-general is the titular head of the Bar and is legal adviser to the Crown.

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Auckland. Largest city and port of North Island, New Zealand, with a magnificent harbor. An important manufacturing centre, it has exports of butter, kauri gum, wool, gold and coal.

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Angsburg. Ancient Bavarian city once famous for the skill of its medieval craftsmen. It has an old cathedral and a splendid town hall.

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- Augusta**. Capital of the state of Maine. Important manufacturing city, with cotton, shoes and paper.
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- Augustine of Hippo, St.** Son of St. Monica. Was born in North Africa and led a dissolute life till converted and baptized in 387. He became Bishop of Hippo about 395, and is famous for his religious writings and discussion with St. Jerome.
- Augustus (Gaius Octavius)**, emperor of Rome, 4-1368
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- Aurora borealis** (popularly called northern lights). A phenomenon of light seen in the northern skies only at night and probably due to magnetic action. It takes many forms, the most common being streamers of colored light—oftenest yellow—radiating in fan shape from a dusky centre slightly above the horizon. Sometimes wings or curtains of light flutter and wave across the heavens. The aurora of the southern hemisphere is called *aurora australis*.
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- Austin, Stephen Fuller** (1793-1836). An American pioneer and politician, known as the founder of the State of Texas.
- Austin**. Capital of the State of Texas. Progressive and growing city. Seat of the University of Texas. Exceptionally large and imposing Capitol building.
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- Australian ballot**. This is a system of voting or balloting to secure secrecy in marking and casting the voting-paper or ballot. The government prints and issues the ballots on which the names of all candidates are placed, and also provides for the arrangement and control of polling-places. This system was first used in Australia, but it has been adopted since by many other countries, especially by the United States and Canada.
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- Auvergne**. Old province of central France, remarkable for its volcanic mountain plateau and ancient lava flows. The powerful Arverni lived in this part of Gaul in ancient times, and fought hard against Julius Cæsar.

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Avalanche. A mass of snow or ice sliding down from a mountain-slope. As a rule, avalanches are not dangerous to human life because they occur above the snow-line; but there have been terrible disasters caused by part of a mountain's breaking off, joining the snow or ice avalanche to form a "rocky avalanche" and burying an entire village.

Avebury. Village in England containing Avebury Circle, a double ring of huge stones believed to have been a Druidical temple.

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Avila. City of Spain, in the hills of Old Castile, 53 miles northwest of Madrid. Its strong high granite walls and 86 towers make it a remarkable island fortress.
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Ayacucho. Cathedral city of Peru. Standing 9,000 feet above sea-level, it was founded by Pizarro in 1539.

Ayllon, Lucas Vasquez de. Born about 1475; died about 1526. A Spanish adventurer and colonizer who explored the Carolina coast in 1521.

Ayrshire, breed of cattle, description, 4-1262

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Azerbaijan. Tartar soviet republic in the Caucasus, under Russian influence; area, 33,640 square miles; capital, Baku. The country has vast oil resources.

Azores. Group of volcanic islands in the North Atlantic, forming part of Portugal. Terceira, St. Michael's and Pico are the largest islands, and Angra, Horta and Ponta Delgada, the chief towns. Oranges, pineapples and bananas are exported. Area, 926 square miles.

Azov, Sea of. Gulf of the Black Sea, with which it communicates by the Strait of Yenikale. 14,500 square miles in extent, it contains the Russian ports of Mariupol, Berdiansk, Taganrog and Rostov. Its waters are brackish and teem with fish.

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Bab-el-Mandeb, Strait of. Strait dividing Africa and Arabia and connecting the Red Sea and the Indian Ocean. About 20 miles broad, it is divided into two channels by the island of Perim. The Arab words mean "Gate of Tears."

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See also Microbes
- Baden**. Fourth largest state of Germany, having an area of 5,820 miles. Bordering on the Rhine, Baden contains Mannheim, a great industrial centre; the capital, Karlsruhe; the famous university towns of Freiburg and Heidelberg; and the watering-place of Baden-Baden. Though containing much of the Black Forest, it produces rye, oats, barley, hemp and wheat.
- Baden-Powell, Sir Robert S. S.** English soldier, defender of Mafeking in the Boer War. Born, 1857.
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- Badger**, animal, 3-873
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- Baffin, William**, arctic explorer, 8-2983
- Baffin's Bay**. *Picture*, 7-2556
- Bag**, *see* Bags
- Bagasse**, fibre of sugar-cane, 10-3416
- Bagdad**. Capital of Mesopotamia, on the Tigris. Founded by the Saracens in 763, on the site of Ctesiphon and Seleucia, it became a centre of Oriental learning under Harun-al-Rashid, but declined under the Turks.
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- Bagehot, Walter**, author, 11-4003
- Baggesen, Jens**, Danish poet, 19-7011
- Bagot, Sir Charles**, governor-general of Canada, 4-1484, 1486
- Bagpipes**. A musical instrument that has come down from very early times. It was known in the Orient and in Europe wherever the Celtic race was found, but nowadays it has come to be known as the national instrument of Scotland. The great Highland bagpipe has a mouth-piece, a leather bag which holds a reserve of air blown into it from the mouth, a chanter with a double reed and eight note-holes, and three drones each with a single reed. It is noted for the stirring martial music it can produce. The Irish bagpipe is on another pattern.
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- Bahamas**, islands in West Indies, 9-3191; 19-7102
- Bahia**, Brazil, settlement and early history, 19-7040
- Bahrein Islands**, 18-6676
- Baikal, Lake**. Sixth largest lake in the world, in east Siberia. 13,200 square miles in extent, it is 385 miles long and from 9 to 50 miles broad, and over 300 streams flow into it. It is frozen from the beginning of January to the end of May, but abounds in fish, notably sturgeon and herring. Seals are found in it.
- Bail**. Security put up to obtain the release of a person from arrest or from custody until the final decision in his case is given by the court. If the person "bailed out" appears in court, the bail is returned; if he does not appear, the bail is forfeited, that is, kept by the
- Bail** (*continued*)
state, and an order for his arrest is made out. Those who advance the security or bail are called bondsmen. A person held for a crime punishable by death is not allowed bail.
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- Bailey, Philip James**, *see* Poetry Index for poem and note
- Baillie, Joanna**, *see* Poetry Index for poem and note
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- Bakers**
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- Baking powder**. A chemically prepared substitute for yeast used in making biscuits, cake and some kinds of bread. Bicarbonate of soda, tartaric acid, and acid calcium phosphate are the chief ingredients used. When water is added, carbonic acid is given off, and this causes the dough to rise.
- Baksheesh**. Tip or gratuity demanded by Arab guides and others, especially from tourists.
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- Balaclava, Russia**
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- Balance**
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- Balance of power**. In international law, according to Woolsey, this means "that any European state may be restrained from pursuing plans of acquisition, or making preparations looking toward future acquisitions, which are judged to be hazardous to the independence and national existence of its neighbors."
- Balance of trade**. An expression used to describe the difference between the value of the imports and exports of a country.
- Balboa, Vasco Nuñez de**, discovered Pacific Ocean, 1-242-44; 9-3295
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- Balboa, Panama**. *Picture*, 1-369
- Balder, or Baldur, the Beautiful**. The sun-god in Old Norse mythology, a son of Odin. He was so bright and beautiful that he shed light about him, and he was the wisest of the gods. He was killed by a piece of mistletoe in the hands of the blind god Hödur.
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- Baldwin I**, made king of Jerusalem, 7-2586
- Baldwin, Matthias**, manufactured locomotives, 5-1618
- Baldwin, Robert**, Canadian statesman
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- Balearic Islands**. Spanish island group in the Mediterranean, including Majorca, Minorca and Ibiza.
- Balfe, Michael William**, Irish musical composer, 10-3611
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- Balfour, Arthur James, Earl of**. Born in Scotland, 1848. A British statesman. Conservative. Prime minister, 1902-05.
- Ballol, John**, king of Scotland, 13-4586
- Balistides**, group of fishes, 16-5900
- Balkan Mts.** Bulgarian range rising to 7,800 feet. It is traversed from north to south by the famous Shipka Pass.

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- Ballarat**. Gold-mining and industrial centre in Victoria, Australia.
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- Ballen, John**, antarctic explorer, 14-5090
- Ballet**. An Italian stage dance of the Middle Ages which spread to France and other countries of Europe and has come down to our time. Russia developed a ballet school of her own in the half-century preceding the World War. The ballet is usually danced by girls or women, and calls for intricate steps and poses and unusual costumes. The idea behind the ballet is the interpretation of music through graceful motion of the body.
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- Ballot**. Originally a little ball used in secret voting. Sometimes the voter was given two balls, one black and one white, meaning "no" and "yes." If he dropped the white one in the box, he voted for the candidate; if the black ball, he voted against the candidate. Nowadays the most common form of ballot is the printed ticket upon which the voter marks a cross opposite the name of his choice for election. Any other mark destroys the ballot's value.
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- Balsam-root**, flower, 18-6660
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- Baltic Sea**. Inland sea lying between Sweden, Finland, Russia, Estonia, Latvia, Lithuania, Germany and Denmark. 166,397 square miles in extent, it contains the gulfs of Finland and Bothnia, both of which are frozen in winter. 200 rivers flow into it. The chief islands are Gothland and Oland, both belonging to Sweden, the Danish islands of Zealand, Funen and Bornholm, and the Aaland archipelago; ports include Abo, Helsingfors, Leningrad, Reval, Riga, Libau, Memel, Königsberg, Danzig, Stettin, Lübeck, Kiel, Copenhagen, Malmö, Stockholm and Gefle.
- Baltimore, Lords of**, and Maryland, 2-550, 552
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- Baltimore**. Important Atlantic port on branch of Chesapeake Bay, Maryland. Huge business in oysters, corn export and manufacture of men's clothing and sail duck. Many beautiful buildings, including the Catholic Cathedral and Johns Hopkins Hospital, one of the foremost scientific institutions in the world. Attack on Fort McHenry inspired Star-Spangled Banner. The first blood of the Civil War was shed in its streets.
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- Baltimore oriole**, *see* Orioles
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- Baluchistan**. Indian northwest frontier province; area, 54,228 square miles. Chief towns, Kalat, Las Bela and Quetta. Most of the people are warlike and pastoral Moslems.
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- Banat**, portion of Hungary, 14-4922
- Banbury**. English market town famous for its oat cakes and for the nursery rhyme which centres around its Cross. Banbury Cross, demolished in 1610, has been replaced by a new one.
- Bancroft, George**, American historian and U. S. Naval Academy, 18-6703
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- Banberry**, plant, description, 17-6279
- Bangkok**. Capital and port of Siam, on the Menam. Built largely on canals, it has been rapidly modernized and does a great trade in rice, teak and ivory.
- Bank of England**. The most important bank in the world and the central figure in the banking system of England. It was founded by William Protheroe in 1694 as a joint-stock association. For lending its entire capital to the Government it was given the right to issue bank notes and a monopoly of a certain kind of banking in England. This monopoly lasted until the nineteenth century. The Bank of England has always been very closely associated with the British Government. The Bank of England Building is in Threadneedle Street, London, and the bank has been nicknamed the "Old Lady of Threadneedle Street."
- Bank of the United States**. The first Bank of the United States was chartered February 25, 1791, as one of the first acts of the new Congress. Soon it dominated the entire banking system of the country and acted as a restraining influence upon the state banks. Its charter expired in 1811, and, through the opposition of the state banks, was not renewed. The disordered condition of bank-note circulation during the

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- Bank of the United States** (*continued*)
 next five years brought about a demand for a new charter for the Federal bank in 1816. The second charter lasted only until 1836. President Jackson vetoed its renewal in 1832.
- Bankrupt.** A person who is unable to pay his debts or one who has failed in business financially is a bankrupt. Under the bankruptcy laws the property of a bankrupt may be distributed among his creditors in proportion or up to what they are owed.
- Banks, George Linnæus,** *see* Poetry Index, for poem and note
- Banks, Sir Joseph,** and steamboats, 17-6400
- Banks and banking.** A modern bank receives money for safekeeping from its depositors; it loans money to those who need it and can guarantee repayment; and some banks issue notes which pass for money. In an ordinary commercial bank a depositor may draw out some or all of his money at one time by means of a written order called a check. In a savings bank it is expected that money be left for a longer period, and interest is credited every three or six months. All banks are subject to strict laws intended to guard against loss. Several thousand years ago men in Assyria did some of the things our modern banks do, and there were many banks in the Middle Ages.
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- Barnabas, St. Levite** of Cyprus who is mentioned in the Acts of the Apostles. He is said to have become first bishop of Milan and to have suffered martyrdom before 75 A.D. An epistle attributed to him is still in existence.
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- Barnum, P. T. (1810-91),** Great American showman. Owned famous circus, known as "Greatest Show on Earth." Brought the singer Jenny Lind to America. Exhibited many freaks, including the dwarf, "General Tom Thumb."
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- Barry, John.** Born at Tacumshane, County of Wexford, Ireland, 1745; died at Philadelphia, Sept. 13, 1803. He came to America and settled in Philadelphia about 1760. He was given command of the Lexington in 1776, at the outbreak of the war, and captured the Edward, the first ship ever taken by a commissioned officer of the U. S. Navy. He was later on a ship which was captured by the British, but escaped. He was appointed commodore in 1794.
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- Bartholomew, St. Apostle** of India and Arabia, according to tradition, and said to have been martyred by an Armenian prince on the shores of the Caspian. He is probably the Nathaniel mentioned by St. John. Jesus called him "an Israelite in whom is no guile."
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- Batavia**. Capital of Java and the Dutch East Indies, exporting coffee, rice, sugar, sago, tin, birds' nests, tobacco, tea and timber. Situated on the Bay of Batavia in a low plain.
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- Bayreuth**. Bavarian town famous for its associations with Wagner and its splendid opera house. Textiles are manufactured.
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 toy, how to make, 2-511-12
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- Bears and Bulls.** In the language of the Stock Exchange a Bear is a person who sells stock he does not possess, intending to make delivery with stock he buys at a lower price. A Bear is always hoping for prices of stock to fall. A Bull is one who buys stock hoping it will increase in price so that he can sell it at a profit.
- Bearweed**, name given skunk cabbage, 17-6274
- Beatrice**, beloved of Dante, 17-6150
- Beatrice**, Christian martyr, 9-3068
- Beau Brummel**, George Bryan (1778-1840). The son of Lord North's private secretary who gained his reputation as an exquisite at Eton and Oxford. At the court of George IV he was long regarded as an oracle on matters of dress and behavior. He came to a sad end, dying destitute in Caen, France.
- Beaubien, Mark**, of Chicago, 19-7107
- Beaufort, Margaret**, mother of Henry VII, 5-1813
- Beauharnais, Josephine**, *see* Josephine, empress of France
- Beaumarchais, Pierre Augustin de**, French writer, 18-6715
- Beaumont, Francis**, English dramatist, 3-1125
- Beauregard, Pierre Gustave Toutant** (1818-93). American soldier, born in Louisiana. He graduated at West Point; served in Mexican War; resigned to enter Confederate service; captured Fort Sumter; and served to end of war.
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- Beavers**, animals, account of, 3-1132-33
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- Bechuanaland**. British South African protectorate; area, 275,000 square miles; capital, Mafeking, Cape Province. Here is much of the Kalahari Desert.
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- Beirut**, Capital and chief port of Syria, exporting silk, oil, wine, gums and fruit.
- Beisa**, animal, 4-1444
- Belcher, Sir Edward**, Arctic explorer in search for Sir John Franklin.
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- Belestier, Elliot**, *see* Poetry Index for poem and note
- Belfast**, Largest Irish city and port, capital of northern Ireland. Standing at the entrance of the Lagan to Belfast Lough, in County Antrim, it is famous for its shipbuilding industry, many of the world's largest liners being built here. The linen industry is also important, but the city has few notable buildings except Queen's University and the Protestant cathedral.
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- Belgrade**, Capital of the kingdom of the Serbs, Croats and Slovenes, Jugo-Slavia, at the junction of the Save and Danube. A trade centre, and once an important fortress, it has many times been besieged.
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- Bell Telephone Laboratories**, and picture transmission, 17-6063
- Belladonna**, drug, from deadly nightshade, 17-6126
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- Bellamy, Edward** (1850-98). An American journalist and author. His best-known work is *Looking Backward*.
- Belleau Wood**. The first important operation of the Second Division of the United States Army during the World War was the capture of Belleau Wood on the Marne by the Marine Brigade in June, 1918. The Brigade was cited in general orders of the Sixth French Army, and the name of the wood was changed to "Wood of the Marine Brigade."
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- Ben-Hur**, by Wallace, * summary and quotations, 10-3745-52
- Ben Nevis**, Highest mountain in the British Isles, in the Grampians. 4,406 feet.
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- Benares**. Holy city of the Hindus, on the Ganges. It contains many temples and shrines, and is visited by vast numbers of pilgrims. It is a centre of trade, as well.
- Bench-hook**, how to make, 17-6262
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- Benjamin, Judah P.**, 19-7167
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- Benjamin tree** produces benzoin, 9-3152
- Bennett, Arnold**, 11-3899
- Bennett, Floyd M.** Warrant Officer U.S.N. and pilot of the Fokker plane which was used by Commander Richard E. Byrd and Bennett for the first airplane flight to the North Pole, May 9, 1926. Died at Quebec, April 25, 1928. *See* Byrd.
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- Benzoate of soda**. An antiseptic or disease preventive quite extensively used in preserving food substance from decay. Its use is allowed by law in a quantity not larger than one-tenth of one per cent. It is a compound of soda and benzoic acid.
- Benzoin**, a gum resin, 9-3152
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- Berbers**, in Africa, 9-3047
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- Beresina**. Tributary of the Russian Dnieper on which Napoleon's army suffered disaster in 1812.
- Bergen**. Second largest Norwegian city and port, with a cathedral and a great trade in fish.
- Bergylt**, fish
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- Bering, Vitus**, arctic explorer
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 explored Alaskan coast, 16-5789
- Bering Sea**. Part of the Pacific lying between Siberia, Alaska and the Aleutian Islands. It connects with the Arctic by Bering Strait.
- Bering Sea Question**. The original dispute of many years' standing between the United States and Canada over the sealing rights in Bering Sea was settled by arbitration. The arbitrators met in Paris in 1893, and the decision was in favor of Canada. Friction continued, however, and two conferences on the question were held in 1897, one between the United States and Canada, the other between the United States, Russia and Japan. Trouble continued, and it seemed as if the seal herd might be exterminated through seal-poachers of the different nations. In 1911 a convention was held between the United States, Great Britain, Russia and Japan prohibiting open pelagic sealing for thirty years, north of 30° North Latitude. The kill was to be made by the United States Government sealers, and the pelts or proceeds distributed in an arranged proportion between the four nations concerned.
- Bering Strait**, named for Vitus Bering, 8-2984
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- Berkshire**. Agricultural county of southern England, containing Windsor, Abingdon, Maidenhead, Wallingford, Newbury, and Reading, the capital. Area, 725 square miles.
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- Bernard of Menthon, St.** (923-1007). Builder of a church and house of refuge on the St. Bernard Pass, where his mission was to tame the banditti and protect travelers. He died at Novara in 1007.
- Bernardin de Saint Pierre, Jacques Henri**
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- Berne**, Switzerland, 16-6006-07
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- Bernese Oberland**. Division of the Swiss Alps containing the Finsteraarhorn, 14,000 feet, Aletschhorn, Wetterhorn and Jungfrau. It is the most popular winter-sports ground in the world, and contains the resorts of Interlaken, Mürren, Adelboden, Grindelwald, Château d'Oex and many others. The Gemmi Pass through the Bernese Alps connects northern Switzerland with the Rhone valley.
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- Bertillon system**. Named for Alphonse Bertillon, chief of the department of identification in the Prefecture of Police of the Seine. He devised a means of identifying criminals by means of measurements which included notes of markings, deformities, color, impression of thumb lines, etc.
- Beryl**, precious stone
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- Berzelius, Jöns Jakob, Baron**. Swedish chemist; born near Linköping, 1779; died, Stockholm, 1848; contributed much to the atomic theory.
- Besançon**. Roman Vesontio, in eastern France, with remains of a triumphal arch, an aqueduct and an amphitheatre. It has a 12th-century cathedral and a bishop's palace, and manufactures watches.
- Besant, Sir Walter**, novelist, 11-3898
- Bessarabia**. District of Rumania lying between the Pruth and Dniester. Up to 1920 it formed part of Russia; Kishenev, the Rumanian Chisinau, being the capital.
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- Best Friend**, early American locomotive
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- Betal**. An Asiatic palm which bears an orange-colored drupe with an outer husk. The nut, used as a masticatory, stains the teeth black, and is pungent and astringent.
- Betelgeuse**, star
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- Bethmann-Hollweg, Theobald von A.** (1856-1921). Imperial Chancellor of Germany from 1909 to 1917. He had a specially Prussian career, was Chief President of the Province of Brandenburg in 1905 and Prussian Minister of the Interior. Indecision and half-heartedness marred his foreign as well as his home policy. Brought to account by Hindenburg and Ludendorff in 1917, the Chancellor resigned and took no further part in politics.
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- Biarritz**. Popular seaside resort in southwest France, with a delightful climate and a fine beach.
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- Big Black River.** American river, rising in southeast Missouri. Flows into White River, Arkansas. 400 miles.
- Big Horn River.** American river, rising in Rocky Mountains, Wyoming. Flows into Yellowstone River. 500 miles.
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- Bilge of a ship,** 14-5002
- Bill of attainder.** See Attainder.
- Bill of exchange.** An unconditional order in writing addressed by one person to another requiring the person to whom it is addressed to pay on demand or at a fixed time a certain sum of money either to a specified person or to bearer.
- Bill of lading.** A written account of goods shipped by any person, signed by the agent of the owner of the vessel or by its master, acknowledging the receipt of the goods and promising to deliver them safe at the place directed, dangers of the sea excepted. Also a similar account issued by a railroad or other common carrier on land.
- Bill of sale.** A formal instrument or deed for the transfer of goods and chattels.
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- Bimetalism.** In coinage the employment of two metals (as gold and silver) to form at the same time, in combination with each other, the standard of values.
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Birmingham. Largest English city after London, covering 68 square miles. The centre of the Midland iron, steel and coal trades, it has a great variety of manufactures, especially of

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- Blue grass**. The genus *Poa* with bluish green culms. Kentucky is called the "Blue-Grass State," from its blue-grass region, where fine horses are bred.
- Blue jays**, birds, *see* Jays
- Blue laws**. Puritanical laws supposed to restrict the freedom of members of the community. The name has been specially applied to the early regulations in force in the colony of New Haven. The name is said to have originated from an edition on blue paper.
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- Board of Health**. A number of persons appointed or elected to sit in council (at a table or board) to regulate the conditions for public health within a certain area.
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- Bogotá**. Capital of Colombia, on a lofty and healthy Andean plateau. Founded in 1538, it has a 16th-century cathedral and many fine buildings, and was once regarded as the chief centre of culture in South America.
- Bohemia**. Formerly an independent kingdom, and later a province of the Austrian Empire, but now the chief division of Czecho-Slovakia. A tableland girdled by mountain ranges, it has immense agricultural and mineral resources and many valuable industries, notably manufactures of linen, woolen goods and glass. Prague is the capital of Czecho-Slovakia; other important towns are Pilsen, Budweis and Reichenberg, while Carlsbad, Marienbad and Teplitz are famous for their mineral springs. The people are mainly Czechs.
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- Bolometer**, to measure heat, 17-6080
- Bolsheviks**. Russian for "Majority party" which in 1917 strove to create a Communist republic in Russia. Its main theories were the conquest of society by the proletariat class, the power of revolutionary instinct, and opposition to the dictatorship of a minority.
- Bombay**. Second city and port of India, on Bombay Island. It is the distributing centre and cotton market for western India, and has also salt, dyeing, metal and tanning trades. Sixty-two languages are spoken, but two-thirds of the people are Hindus. Near by are the Cave Temple of Elephanta and the Parsee Tower of Silence.
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- Booth, John Wilkes**, actor, assassinated Abraham
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- Boracic acid** or **boric acid** (B(OH)₃). A white
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 which appear in solution in the hot lagoons of
 Tuscany or the volcanic Lipari Isles and from
 Borax Lake in California. Used as a preserva-
 tive, in coloring gold, making flint glass, etc.,
 and medicinally as an antiseptic.
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- Bordeaux**. Fourth largest French city, with a
 fine harbor on the Garonne. The chief centre
 of the wine trade, it also has a thriving ship-
 building industry and an enormous general
 trade. Its magnificent Gothic cathedral was
 partly built by the English during the Hundred
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- Bosnia**. Formerly Turkish, and later part of
 the Austrian Empire, 1908-18, but now united
 with Jugo-Slavia. One-third of the people are
 Mohammedans, the remainder being divided be-
 tween the Roman Catholic and the Greek Ortho-
 dox churches, but they are mainly of Slavonic
 stock. Sarajevo is the capital.
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- Boston**. A centre of culture and education in
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 States. An important port and manufacturing
 city, and financially influential. Large wool and
 fish trade. Export trade second only to New
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- Boston Massacre**, 1770, 4-1162
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- Boston Fort Bill**. A bill passed by the British
 Parliament in 1774 to punish the people of Bos-
 ton for their destruction of imported tea lying
 in their harbor. It provided for the removal of
 the seat of government to Salem and the re-
 moval of the port to Marblehead until certain
 conditions had been complied with. The bill
 stirred up great sympathy among the colonists
 and food was sent to the city.
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- Bosworth Field, Battle of**, 5-1686
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- Botany**. The scientific study of plants, which
 to-day includes a group of sciences. Taxonomy
 is the classification of plants; in this subject
 Linnæus excelled. Morphology treats of the
 structure and development of plants. Anatomy,
 aided by the microscope, deals with plant tissue;
 Physiology with the life of plants, as to how
 nutrition is absorbed, etc.; Ecology is the branch
 of plant physiology which treats of the plant in
 relation to its environment; Pathology tells of
 plant diseases; Bacteriology treats of the plants
 known as bacteria.
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- Botha** (1862-1919). Great Dutch South African
 statesman, first prime minister of the Union of
 South Africa in 1910. During the World War
 he led expeditionary force against rebels in
 Union and German Southwest Africa, organized a
 force against German East Africa and an ex-
 peditionary unit for Europe. Represented South
 Africa at the Peace Conference, 1919.
- Bothnia, Gulf of**. Northern arm of the Baltic,
 between Sweden and Finland.
- Bothwell, James Hepburn, 4th earl**, marriage to
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- Boulogne**. French port on the English Channel, with an important passenger traffic with Folkestone and a large North Sea fishery. The old town stands on a hill above the harbor, and is still surrounded by high walls. It has a cathedral.
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- Boxing the compass**. Nautical term for giving all the points of the compass in regular order; hence, in politics, and so on, to try all sides and end where one began.
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- Boycott**. To combine against any person, withholding social or business intercourse from him and compelling others to do the same. From Captain Boycott, a land agent in Ireland who was so treated in 1880.
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Marco Bozzaris, by Fitz-Greene Halleck, 8-2765
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- Brabant**. Ancient province of the Netherlands, now divided between Holland and Belgium. It contains Brussels and Antwerp.
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- Bracken**, fern
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- Brahmanism**, early religion of India, 9-3085
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- Brahmaputra**. Great river of Asia. It rises in the northernmost chain of the Himalayas and flows through Tibet, Assam and Bengal into the Bay of Bengal, being navigable in places in Tibet at 13,800 feet above sea-level. Its discharge in Assam is estimated at 140,000 cubic feet a second, nearly double that of the Ganges. There is great development of agricultural resources within its basin. 1,680 miles.
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- Bramante**, sometimes called Lazzari, (Donato d'Agnolo), Italian architect, 17-6300
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Brandes, Georg, literary critic, 19-7012

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Brandy-bottle, yellow water lily, 16-5870

Brandywine, Battle of. Fought in Pennsylvania during the American Revolution between the British under General Howe and the Americans under General Washington. The Americans were defeated, and Howe was enabled to occupy Philadelphia. In this engagement Lafayette was seriously wounded.

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Brandywine Creek. Stream, principally in southeastern Pennsylvania, flowing into Delaware River.

Brangwyn, Frank, British painter, 8-2860

Brantly, E., inventor, 17-6246

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Brant, goose, description, 11-3888

Bras d'Or Lake, Cape Breton Island, 1-106

Brass. An alloy of copper and zinc used in commerce as cast, sheet, wire and tubes. The proportions of its parts vary according to its use. The method for producing brass from copper and zinc was patented by James Emmermson in 1781. Brass has a fine yellow color, takes a high polish, is harder than copper, and therefore resists wear better. It tarnishes on exposure to damp unless protected by varnish or veneer. Some of the important kinds have special names, as, Arch's metal, Bristol brass.

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Brazilwood, tree, produces dye, 9-3154

Brazos River. American river rising in the Staked Plain, Texas. Flows into Gulf of Mexico. 850 miles.

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Breadfruit

Picture (in color) 8-3000

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Breakwater. A structure built out into the sea or lake to break the force of waves and provide calm water inside for anchorage of vessels. Extensively used in Europe and Asia and on the Great Lakes.

Breath

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Why do we not see our breath on a warm day? 16-5842

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Do seeds breathe just as people do?

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Does a rock breathe? 9-3102

If fish breathe under water, why cannot

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Why do we get out of breath when we run?

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Breeches Bible, 14-4950

Brehon Laws, Ireland, 8-2929, 2932, 2934

Bremen. Ancient German free city and port, on the Weser. It has considerable manufactures and a great transatlantic trade, the largest ships being able to reach Bremerhaven, its outpost. Part of the old ramparts still remains, and there is an old cathedral.

Bremen, Junkers plane, 1-182, 184

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Brendan, St. (about 484-578). Irish abbot who is said to have presided over 3,000 monks in the 6th century. He is famous for his seven years' voyage, in which, according to legend, he and 17 others set out from Kerry in a coracle in search of the western Land of Promise of the Saints.

Brenner Pass. Lowest pass over the Alps and first to have a railway. It connects the Austrian and the Italian Tyrol, and since Roman times has been the chief highway between Germany and Italy. 4,500 feet.

Picture, 17-6198

Brescia. Railway centre in Lombardy, Italy, with manufactures of iron and steel goods, woollens, wine, linen and silk. Over 2,000 years old, it is surrounded by walls and dominated by a castle; it has an ancient cathedral, a magnificent town hall, and many fine churches, some of them decorated with paintings by Tintoretto and Paolo Veronese.

school of painting, 3-1107

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- Breslau.** German cathedral and university city on the Oder, and capital of Silesia. A great industrial centre, it makes woollens, linen, cotton, soap and machinery.
Picture, Town Hall (grave) 12-4176
- Brest.** One of chief French naval ports, in Brittany. It has important fisheries, considerable manufactures, and one of the finest harbors in Europe.
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- Bretons.** Celtic inhabitants of Brittany, and similar in race and dialect to the Welsh. They are of the round-headed Alpine type of the Caucasian division of peoples.
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- Bridge** of a ship, 12-4418; 14-5002
- Bridge-board,** game, 8-2744
- Bridge of Sighs,** Venice, 4-1458
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- Bridgeport.** Busy manufacturing and commercial city of Connecticut, on an inlet of Long Island Sound.
- Bridges, Robert,** poet laureate, 12-4233
- Bridges**
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- Brigham, Louise,** and box furniture, 3-891-93
- Bright, Charles Tilston,** and Atlantic cables, 12-4294, 4296
- Bright, John,** English statesman and orator, leader of the Anti-Corn-Law League; born, Greenbank near Rochdale, 1811; died, 1889.
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- Brill,** fish, 16-5779
Picture, 16-5779; (in color) 16-5784
- Brimstone,** or sulphur (S). A natural acidic element occurring in large quantities in various sulphids and sulphates. It is found in volcanic regions, as in Sicily, in vast beds, and in non-volcanic regions, as in Louisiana. Melted out from accompanying earthy matter, it is then distilled; first vapors are condensed as a lemon-yellow powder called flour of sulphur, the remainder is condensed as a liquid, which is cast into sticks forming roll sulphur, or brimstone. Used in medicine as a laxative, in commerce in making gunpowder, matches, fireworks, sulphuric acid, for vulcanizing rubber and for bleaching.
- Brindisi.** One of the most important Adriatic ports of Italy, with mail and passenger services to Egypt, India, Turkey and Greece. It has a cathedral, a massive medieval castle and a large export trade.
- Brindley, James,** founder of English canal system, 13-4786; 19-7205
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- Brisbane.** Capital and chief port of Queensland, Australia, on Brisbane River. A healthy and well-built city, it has two cathedrals and a university, and manufactures leather, soap and tobacco. Sheep, frozen meat, tallow, coal and wool are exported.
coal in neighborhood, 7-2468
- Bristol.** Chief port of southwest England, and one of the most historic. Standing 7 miles from the mouth of the Avon, it has fine docks at Avonmouth accessible to the largest vessels, and its industries include manufactures of tobacco, cocoa, chocolate and soap. There is a cathedral, founded in 1142, while the Church of St. Mary, Redcliffe, is one of the finest Perpendicular buildings in England. Other prominent buildings are the university and the Cabot Tower.
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- British Columbia.** Canadian western province; area, 356,000 square miles; capital, Victoria, on Vancouver Island. Lying west of the Rockies, it has a mild and healthy climate, and is noted for its fruit-growing industry. The rivers, the Fraser especially, are the source of a great salmon-canning trade, while the hills are rich in coal, copper, zinc, gold, silver, lead and timber. Vancouver, terminus of the C.P.R., is the second seaport of Canada.
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- Brittany**, Northwest peninsula of France, formerly an independent duchy. Famous for its beauty and the quaint customs of its people, mostly peasants and fisherfolk, it contains the beautiful old towns of Rennes, its old capital, Dinan, and Vannes, many small seaside resorts, and the ports of Nantes, Brest, Lorient, St. Nazaire and St. Malo.
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- Broadcloth**. A fine smooth-faced woolen cloth usually of double width (hence the name) in which the hairs of the wool and warp are entangled so that the cloth does not unravel when cut. The term has also been applied to a cotton fabric.
- Broca, Paul**, French anthropologist, discovered speech area in brain, 9-3062
- Brocade**. A silk fabric woven with gold and silver or ornamented with raised flowers, foliage, etc. The East has long been famous for its brocades. Made in Europe since 1400.
- Broccoli**, cauliflower, 7-2618
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- Brock, Sir Isaac**, in War of 1812, 5-1705
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- Brockton, Mass.**, note and *picture*, 11-3781
- Broke, Sir Philip Bowes Vere**, captain of the Shannon, 5-1704
- Broken Hill**, Australia, silver mine, 7-2470
- Broker**. An agent or middleman employed to make contracts for other persons in trade, commerce and navigation for a fee or compensation generally called brokerage. There are various kinds, as stock brokers, insurance brokers, real-estate brokers, ship brokers, literary brokers, etc.
- Brome**, grass
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- Bromide**. A compound of bromine with another element. Bromine (Br) is an elementary chemical substance discovered by Balard in 1826, which occurs in combination with silver, with alkalis, in sea and mineral waters. The most important bromide is that of potassium (K Br), which is extensively used in medicine. Another important bromide is that of silver, which, being sensitive to the action of sunlight, is much used in photography.
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- Bronze**. An alloy of copper and tin with sometimes small proportions of other elements, as zinc and phosphorus. In bronze the alloy shrinks and occupies less space than the total of the separate metals. It is harder than copper and tin. Easy to work with the tool, it is the best material for repoussé work, and has been in use for decorative purposes from the earliest times. Proof against the moisture of the air, bronze is used in bell-casting, for the mounting and supports of astronomical instruments, and for cannon.
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- Brown, Henry Kirke**, American sculptor, 14-4936
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- Brown, Thomas Edward**, English poet, 12-4232
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- Brown thrasher**. Sometimes improperly called Brown thrush, is a wren common in the United States, ranging north to Canada and west to the Rockies. About a foot long, it is reddish brown above and cream spotted with brown below. A very fine songster and mimic.
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- Bruno, St.** Eleventh-century saint who was born at Cologne and became a high church dignitary. In 1080, however, he decided to go into retirement with six others, and, the Bishop of Chartreuse, he founded there the austere Carthusian order.
- Brunswick**. Picturesque old cathedral city of northern Germany, with pianoforte, machinery and chemical manufactures. Said to have been founded about 861 by Bruno, son of the Duke of Saxony.
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- Bryan, William Jennings** (1860-1925). American politician. Secretary of State in cabinet of President Wilson. Ran for president unsuccessfully three times, 1896, 1900, 1908.
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- Bucharest**. Capital, and commercial and railway centre of Rumania, on the Dambovitza tributary of the Danube. It has a university and a fine cathedral.
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- Bucket-shop**. A place where bets are made in the form of orders on current prices of stocks, grain, oil, etc. No actual buying or selling of the property is made, and legally these transactions are wagers, and the bucket-shop an illegal institution.
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- Buckwheat**, account of, 5-1856
- Budapest**. Capital and railway centre of Hungary, on either bank of the Danube. One of the finest cities of Europe, it is the depot for the immense Hungarian agricultural trade; it has engineering works and a university.
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- Buddha, or Gautama**, founder of Buddhism
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- Buddleia**
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- Budget**. Annual financial statement made by the British Chancellor of the Exchequer to the House of Commons. It includes a general view of the finances of the country with proposed measures for the year. The United States adopted a budget in 1921. Canada follows British procedure.
- Buds**
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- Budweis, or Budejovice**. Cathedral and manufacturing city of Bohemia, Czecho-Slovakia.
- Buena Vista, Battle of**, 6-1920
- Buenos Aires**. Capital and chief port of Argentina, on the La Plata. Founded in 1535 by Pedro de Mendoza, its growth has been enormously rapid since 1860, and it is now the largest city south of the Equator. More than four-fifths of the exports of Argentina pass through it, principally frozen meat, wool, grain and live stock. The city is well laid out and has many fine buildings, including the great cathedral modeled after the Madeleine at Paris.
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- Buffalo**. Industrial and commercial centre, in New York State. Standing at the eastern end of Lake Erie, it is one of the largest ports on the Great Lakes, with an immense distributing trade in grain, flour, cattle, iron, coal and lumber. The manufactures are varied and important.
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- Bulgaria.** A Finno-Ugrian race of the Northern Mongolic division of peoples, the Bulgars came from the area between the river Kama and the Caspian Sea, and laid waste the areas over which they passed. They mingled with the surrounding Slav populations, and a predominantly Slav people now inhabits Bulgaria.
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- Bull fight.** A fight in which men torment and fight with bulls for the amusement of the crowd. Bull fights were common in Greece and Rome; they are to-day in Spain and Mexico, and in a modified form in Portugal. *Plaza de Toro* is the arena; *picadores* the horsemen; *banderilleros* the footmen; *matador* the swordsman; *capas* the red cloaks of the banderilleros.
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- Buoy.** A floating object moored to the bottom to mark a channel or point out the position of something beneath the water. Buoys are of different shapes and sizes according to their purposes, as *can buoys*, in the form of a cylinder; *nun buoys*, cone-shaped; *spar buoys*, spars, anchored at one end. Different colors mark different locations and indicate different things. There are bell-buoys and whistling buoys.
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- Burke, Edmund.** Irish orator and political writer. Born, Dublin, 1729; died, Beaconsfield, 1797.
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- Burma.** Largest Indian province; area, 238,000 square miles; capital, Rangoon. Generally mountainous, especially in the Shan States, it has an enormously heavy rainfall, in places amounting to 228 inches. Immense crops of rice are grown in the Irrawaddy valley, while teak, petroleum, precious stones and ores are all large exports. Mandalay, Prome, Bassein, Dhamo, Pegu, Moulmein and Akyab are the chief towns. The climate is much affected by monsoons, and the wet and dry seasons bring about distinct alternations in the manner of living.
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- Burnside, Ambrose Everett** (1824-81). American soldier born in Indiana. He graduated from West Point in 1847 but soon resigned to become a manufacturer of firearms. He volunteered in 1861, and served creditably until he was, against his will, made commander of the Army of the Potomac; defeated at Fredericksburg; served to end of war; governor of Rhode Island, 1866-69; U.S. Senator, 1875-81.
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- By-law.** A law or regulation made by a public or private corporation for the regulation of its own affairs and the government of its members. The by-laws of a municipal corporation are true laws, of private corporations rather agreements than laws in the true sense.
- Byrd, Commander Richard Evelyn.** American naval officer and aviator. Born in Virginia, 1890, descendant of William Byrd.
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- Cabal**. The union of several persons in an intrigue to further their own private ideas in church or state. The word comes from the initials of five unpopular political ministers of Charles II of England, namely, Clifford, Ashley, Buckingham, Arlington and Lauderdale. The modern use of the word is one of reproach.
- Cabanel, Alexandre**, French painter
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- Cabbage Family**, plants, members of, 13-4870
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- Cabinet**. A political term used to denote the body of ministers who direct the government of a nation or a country and act as advisers to the president or premier.
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- Cable, George Washington**, American author, 13-4819
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- Cabot, Sebastian**, explorer, false claims of, 8-2980
- Cabral (or Cabrera), Pedro**. Portuguese navigator, born about 1460; died about 1526.
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- Cacao**, the chocolate tree, 7-2536
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- Cacomistle**, animal, 3-872
- Cactus**, family of plants, 9-3267-68
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- Cadwith**, Cornwall
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- Cadiz**. Ancient Spanish city and port. The largest port on the southwest coast, it has large shipbuilding and export trades and considerable manufactures. The two cathedrals contain fine pictures by Murillo.
 founding of, 14-5042
- Cædmon**, poet, 1-321
- Caen**. Historic city of Normandy, France, with many associations with William the Conqueror. The Abbaye-aux-hommes was founded by him, and the Abbaye-aux-dames by Queen Matilda; their former graves are in the churches of St. Etienne and La Sainte Trinité.
- Cæsalpinus, Andrea**, studied circulation of blood, 8-2725
- Cæsar, Julius**, Roman general and statesman
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- Caffeine**, effect of, 4-1451
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- Cage**, directions for toy cage, 6-2266
- Cagliari, or Callari, Paolo**, *see* Veronese, Paolo
- Cagliari**. Capital and chief port of Sardinia, with a good harbor and a large trade. It has a cathedral and a university, and is rich in ancient remains, having been a Carthaginian stronghold in the 6th century B.C.
- Cahokia Court House**, first public building in Illinois, 19-7112
- Caimans**, variety of crocodile, 14-5229
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- Caine, Hall**, novelist, 11-3898
- Cairngorm**. Peak of the Grampians on the border of Banffshire and Inverness-shire, Scotland. It is noted for its topazes and cairngorm stones, a variety of quartz, 4,080 feet.
- Cairo**. Largest African city, capital of Egypt. Standing on the Nile, near the site of ancient Memphis, it is the emporium for the merchandise of northeast Africa, and has considerable manufactures. There are over 250 mosques, among them El Azhar, the greatest Moslem university; while other important buildings are the cathedral and the citadel built by Saladin in 1166. Near by are the tombs of the Caliphs and the Pyramids of Gizeh.
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- Caius, John**, founder of Caius College, Cambridge, 8-2725
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- Calah**, ancient Assyrian city, 2-654-55
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- Calais**. Nearest port of France to England, on the Strait of Dover. It is a busy, dirty town, with a large fishing industry and manufactures of tulle and lace.
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 won from England under Henry II, 10-3434
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- Calamata**, Greek city, 14-4918
- Calamint**, flower
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- Calcimine**. A white or tinted wash for walls, ceilings, etc., made of a mixture of clear glue, Paris white or zinc white, and water.
- Calcium**, compounds of, 13-4530

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- Calcium carbide**, production and importance, 16-5946
- Calcutta**. Largest Indian city, and capital of Bengal, on the Hoogli. It grew up round Fort William, completed in 1702, and became the emporium for the trade of the Ganges and Brahmaputra valley, exports now including jute, tea, hides, grain, oil-seeds and cotton. There are fine buildings and two cathedrals.
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- Calder, Alexander Stirling**, American sculptor, 14-4940
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- Calderón de la Barca, Pedro**, Spanish dramatist, 19-7129
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- Caledonian Canal**. Waterway running through the Great Glen of Scotland, and connecting Loch Linnhe with the Moray Firth and North Sea; 60 miles long, it is formed by Loch Ness, Loch Oich and Loch Lochy, with 22 miles of artificial cuttings. The original survey for the work was made by James Watt in 1773, and the canal was begun by Thomas Telford in 1801, and opened in 1822.
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Who arranged the days? 11-4131-32
- Calends**, see **Kalends**
- Calgary**. Oldest and largest city of Alberta, Canada, on the main line of the Canadian Pacific Railway. A great ranching centre, it manufactures leather and flour.
- Calhoun, John C.**, American statesman, life, 10-3492
Picture, portrait (graveure) 11-3948
- Calico**. The general name for plain cotton cloth. In the United States the name is given to cheap printed material. The process of impressing the figures on the cloth is called calico-printing.
- California**. Second largest American State, bordering the Pacific; area, 158,297 square miles; capital, Sacramento. Possessing a beautiful climate and immense mineral and agricultural resources, it has had a phenomenal rise in prosperity since settlers were first attracted there by its gold; in 1850 its population was only 93,000. Gold is still the principal mineral, but copper, iron, chromium, antimony, lead, silver, quicksilver, rock-salt and much petroleum are produced. Agricultural produce includes wheat, barley, lucerne, hops, and vast quantities of honey, nuts and fruit. San Francisco has a magnificent harbor; Los Angeles, the largest city, is the centre of the moving picture business trade, and Oakland and San Diego are business centres. Abbreviation, Cal. Nickname, the "Golden State." State flower, the golden poppy. Motto, "Eureka" (I have found it). California may come from the Spanish meaning "a hot furnace." First settlement, San Diego, 1769.
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- Caligula**, Roman emperor, 5-1861
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- Caliphate**. Sovereignty of the Caliph, the recognized head of the Mohammedan world. Caliph means "successor," that is, successor of Mohammed.
of Hussein, 18-6675
- Callao**. Chief seaport of Peru, seven miles by railway southwest of Lima. It exports wool, cotton, hides, copper, nitre, silver and guano.
- Calliocrates**, Greek architect, 15-5344
- Calling crab**, description, 16-5953-54
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Picture and note, 16-5661
- Calumet**, Indian pipe of peace, 18-6553
- Calumet-Sag Canal**, near Chicago, 19-7110
- Calvert, Cecil** (c. 1605-75). 2d Lord Baltimore. The first proprietor of Maryland, though he never visited the colony. Leonard Calvert was his younger brother.
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- Calvert, George**, 1st Lord Baltimore and Maryland, 2-550
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- Calvert, Leonard** (c. 1606-47). First colonial governor of Maryland. In 1634 made the first permanent settlement in Maryland, at St. Mary's.
- Calvin, Jean**, French author
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- Calypso**, orchid, description, 19-6928
- Calypso borealis**, orchid, description, 17-6281-82
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- Calzabigi**, wrote words for Gluck's operas, 19-6916
- Cam, Diogo**, Portuguese explorer, 18-6814
- Cambium**, growing layer in tree, 11-4096
- Cambodia**. French Indo-Chinese protectorate, covering 67,550 square miles in the Mekong basin. Rice, pepper, tobacco, indigo, sugar, cinnamon and coffee are produced, and the capital is Phnom-Penh.
- Cambrian period**, see **Geology—Cambrian period**
- Cambridge**. Capital and market town of Cambridgeshire, England. Its famous university, the first college of which was founded in 1284, has 17 colleges and 2 hostels, while the town has several fine churches.
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- Cambridge**. City of Massachusetts, famous as the seat of Harvard University. It has meat-packing, printing and manufacturing industries. Radcliffe College for women, and Massachusetts Institute of Technology are also here.
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- Cambyses III.** Persian king, son of Cyrus the Great and conqueror of Egypt; king, 528-521 B.C. reign of, **3-912**
- Camden.** City of New Jersey, on the Delaware River. Standing opposite Philadelphia, it has iron foundries and shipbuilding yards, and manufactures glass, chemicals, paper and leather.
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- Cameo.** An engraving on a stone or hard shell done in relief. There are usually two layers of different colors, the relief sculptured on one and the other serving as a background. Opposite of intaglio.
- Camera,** *see* Photography
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- Camillus, Marcus Furius,** Roman general, **4-1362**
- Camões, Luis Vaz de,** Portuguese poet, **19-7130**
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- Camomile,** *see* Chamomile
- Camorra.** Secret society of Naples formed in the early 19th century and used for practicing extortion or violence.
- Camouflage,** developed by Abbott Thayer, **10-3454**
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- Campanile.** A bell tower not attached to another building; introduced into architecture by early Christians.
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- Campus Martius.** Vast plain to the west of Rome where public assemblies were held.
- Canaanites.** Descendants of Canaan, son of Ham, inhabiting the land lying between the Jordan and the Mediterranean (included in modern Palestine). The Canaanites were conquered by the Israelites after a long struggle.
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Canary Islands. Volcanic island group off the northwest coast of Africa, covering altogether about 2,800 square miles. The climate is mild, and the soil amazingly fertile; immense quantities of fruit, besides wine, sugar and tobacco being grown; while the export of bananas is important. The chief islands are Grand Canary and Teneriffe, with its famous peak 12,000 feet

Canary Islands (continued)

- high; Santiago de Tenerife is the capital. The Canaries have belonged to Spain since 1495.
Canberra. Future capital of Australia, begun in 1913. It is situated in the Canberra Federal Capital Territory, 912 square miles in extent, in New South Wales, and has railway communication with Sydney.
Cancer. An abnormal increase in size of an area of tissue or of an organ; a malignant tumor.
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Canossa. The castle in Italy where Hildebrand, better known as Pope Gregory VII, received the submission of King Henry IV of Germany in 1077.
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Canterbury. Ecclesiastical capital of England, on the Kentish Stour. An ancient British town, it became Durovernum of the Romans, and later capital of Saxon Kent. The magnificent cathedral was founded by St. Augustine in 597, and was finally completed about 1495. Here Thomas à Becket was murdered in 1170, his shrine being for centuries a resort of pilgrims. Other buildings are: St. Martin's Church, probably the oldest in England; the ruined Norman keep of the castle; the West Gate; and remains of the ancient walls.
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Cantigny. The first engagement (of any size) of the American troops in the World War was at Cantigny, May 28, 1918.
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Canton. Metropolis of southern China, on Canton River. Forty miles from the sea, it does much of its huge trade by lighters, and many

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- Canvasback**, duck, 11-3889
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- Caoutchouc**, obtained from banyan tree, 9-3261
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- Cape Breton Island**. Island of Nova Scotia, Canada; area, 3,120 square miles; capital, Sydney. Coal is mined, and there are shipbuilding, lumber and fishing industries.
 Bras d'or Lake, formation of, 1-106
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- Cape Cod**, picture and note, 11-4060
- Cape Colony**, South Africa
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- Cape of Good Hope**. Southern and largest South African province; area, 277,000 square miles; capital, Cape Town. Containing the dry and healthy Karroo table-lands, it is mainly agricultural and pastoral; wheat, oats, barley, rye, corn and vegetables are grown, and sheep, ostriches and Angora goats reared. Near Kimberley there are diamond-fields; copper is mined in Namaqualand, and there are coal-mines near Stormberg. Port Elizabeth, East London and Mossel Bay are ports.
 history, 9-3048-50
- Cape Town**. Capital and chief port of Cape of Good Hope Province, South Africa. Beautifully situated on Table Bay, it is finely built, and has a splendid climate; there are extensive docks and an Anglican cathedral. More than half the inhabitants are white.
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- Cape Verde Islands**. Group of Portuguese West African islands, lying off Cape Verde, 1,480 square miles in extent, they produce coffee, sugar, corn, tobacco and indigo.
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- Capelin**, fish, 16-5776
- Caper**, plant, account of, 8-2996
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- Capillaries**, minute blood vessels and bleeding, 13-4596
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- Capillary tube**. A tube with a very small bore or inside diameter, usually as fine as a hair or even finer. If this tube (both ends open) has one end in a vessel of water, the water will rise inside the tube to quite a height. The finer the bore of the tube the higher the water will rise. Different liquids rise to different heights. The tendency of a liquid to rise in such a tube is called "capillary attraction." The wick of a candle or lamp is made up of thousands of tiny tubular threads through which the oil rises.
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- Cappel, Battle of**, 16-6004
- Capri**. Beautiful island at the entrance to the Bay of Naples, famous for its Blue Grotto. There are remains of Roman cisterns and baths.
- Caprifig**, wild fig, necessary for growth of cultivated figs, 6-2162
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- Caracal**, animal. *Picture* (gravure), 2-500
- Caracaras**, birds, 10-3759
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- Caracas**. Capital of Venezuela, with a university and a cathedral. La Guayra is its port.
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- Caravans** in desert, description, 18-6743
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- Caravels**, ships, 11-3916
- Caraway seeds**, 8-2996
- Carbides**. In chemistry these are compounds of carbon either with the metals or with certain non-metallic elements such as silicon. Iron carbide and calcium carbide are the most important carbides. Carbides are used in iron smelting and in the manufacture of acetylene gas.
- Carbohydrates**, digestion of, 6-2085
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- Carbolic acid**, or phenic acid (C₆H₅OH). An important organic substance used as an antiseptic or disinfectant. It is found almost exclusively in coal-tar, produced by the destructive distillation of coal or wood. A further distillation of the coal-tar produces the carbolic acid.
- Carbon**, chemical element
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- Carbon dioxide**
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- Carbon monoxid, or carbonic oxid (CO)**. A gas made up of carbon and oxygen, and deadly poisonous. It is formed by the breaking-up of carbonic acid, and its general sources are the coal or charcoal fire, illuminating gas and the exhaust from a gasoline engine. It is colorless and odorless, and burns with a pale lavender flame. A furnace or stove gives off carbon monoxid if the drafts are not open sufficiently to permit enough oxygen to enter and combine with the CO to form CO₂. It is highly dangerous to remain in a room where a gasoline engine is going unless doors and windows let in a good supply of fresh air. Especially should this be remembered in garages and in the engine-rooms of motor boats, for the quantity of CO given off by a gasoline engine mounts rapidly and is deadly in the extreme. To detect carbon monoxid in the air a cloth moistened with palladium chlorid may be used; if CO is present in any quantity, a brown color will appear on the cloth. Palladium chlorid may be secured at the drug store.
- Carbonic-acid gas (CO₂)**. Also called carbon dioxide or choke damp. A gas made up of carbon and oxygen. It is given into the air when people and animals breathe, and in daylight it is absorbed by plants, which make it into food for themselves. It dissolves in water. In large quantities it is deadly to animal life, for it is poison to the lungs. It can be used in aerated or mineral waters as a drink and is harmless to the stomach. It is a colorless, odorless gas, 22 times as heavy as hydrogen. It will not burn, nor will it support burning.
- Carboniferous period**, see Geology—Carboniferous period
- Carborundum**. An artificial abrasive which takes the place of emery. It is produced in the

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electric furnace from smelting a mixture of coke, sand, sawdust and salt.
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- Carburetor**, in automobile, 19-7029, 7032
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- Carcassonne**, France, 10-3612; 11-3820
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- Card tricks**, see Tricks—card
- Cardiff**, Commercial capital and port of South Wales, at the junction of the Taff with the Bristol Channel. The export centre for the South Wales coal-field, it has risen rapidly in importance during the last century, the population in 1801 having been less than 2,000. It has large steel and copper works and considerable manufactures, and is noted for its fine docks.
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- Cardinal**. A high dignitary of the Catholic Church and a member of the Sacred College (or counselors of the pope). When a pope dies the new pope is elected by the cardinals from the members of the Sacred College. A cardinal is appointed by the pope, and is a prince of the Church and ranks next to the pope.
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- Carew, Thomas**, see Poetry Index for poem and note
- Carex, Marsh**, plant, note and picture, 16-5878
- Carey, Henry**, author of *Sally in our Alley*, 10-3609
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- Caribbean Sea**. Part of the Atlantic lying between South and Central America and the West Indies.
- Caribou**, animal, 4-1447-48
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- Caribs**. A family of American Indian race who inhabit central Brazil and the Guianas and the Lesser Antilles. The Caribbean Sea is named for them.
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- Carleton, Will** (1845-1912). American poet.
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- Carlsen, Captain**, polar explorer, 8-2983
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- Carnation**, flower, description, 19-7170
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- Carnegie, Andrew** (1835-1919). A Scottish-American capitalist who made an immense fortune in the United States as a producer of steel. Much of his wealth he gave to found libraries bearing his name. In 1911 he established the Carnegie Corporation of New York and had endowed it before his death, with \$125,000,000 to be used for promoting civilization. Carnegie made public gifts amounting to \$350,000,000 before he died.
- Carnelian**, semi-precious stone
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- Carnot, Lazare**. French war minister called the Organizer of Victory; born, Nolay, Burgundy, 1753; died, Magdeburg, 1823.
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- Carolina**, royal grant, 1663, 2-553
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- Caroline Islands**. Group of about 500 Pacific islands, discovered by the Portuguese in 1527. Purchased by Germany from Spain in 1899, in 1914 the whole archipelago, including Yap and Ponapé, passed to Japan. By the Treaty of Versailles Japan took the mandate for the islands.
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- Carpaccio, Vittore**, Italian painter, 3-1104; 4-1461-62
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- Carpathians**. Mountain range in Central Europe, encircling the plain of Hungary. It reaches its highest points in the High Tatra of Czecho-Slovakia, 8,750 feet, and in the Transylvanian Alps of Rumania, 8,250 feet.
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- Carpeaux, Jean Baptiste**, French sculptor, 13-4706
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- Carpel**, part of flower, 2-506; 3-1013
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- Carpenters' Hall**. A historic building on Chestnut Street, Philadelphia, associated always with the First Continental Congress.
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- Carpet-knight**. Term of contempt for a man who leads a life of idle luxury instead of fighting his battles in the world.
- "Carpetbaggers"** in South, after Civil War, 7-2444
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- Carranza, Vennustiano**, president of Mexico, 19-7140
- Carrara**. City in Italy long noted for its marble Ancient Roman tools are often found in the quarries.
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- Carson, Christopher** (1809-68). Generally known as Kit Carson. A famous American hunter, trapper, Indian fighter and Western scout.
- Carson City**. Capital of the State of Nevada. It is situated about 12 miles from Lake Tahoe, near the base of the Sierra Nevada, and is in a fertile agricultural district.
- Cartagena**. Seaport of Colombia, exporting sugar, coffee, tobacco, cattle, hides, dyewoods and rubber. Founded in 1533, it has a cathedral and a university and the best harbor on the Caribbean coast.
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- Cartoons**, in moving pictures, how made, 2-456
- Cartouche**, royal sign, 3-814
- Cartwright, Edmund**, inventor of power loom, 19-7204
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- Caruso, Enrico**. An Italian operatic tenor possessing a voice of extraordinary power. Born, Naples, 1873; died, August 2, 1921. Sang in grand opera in practically every important city in the world.
- Carving**, *see* Woodcarving
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- Casabianca, Giacomo Jocante**, story of bravery, 19-6881
- Casablanca**. Chief Moroccan Atlantic port, with a fine modern harbor. It is connected by railway with Rabat and Fez.
- Casgrain, L'Abbé**, French Canadian author, 15-5367
- Cash register**. A kind of adding machine and cash box which makes a record of the money received for every purchase and adds the sum to that already in the drawer of the register; in addition it shows the customer what he has been charged. Figures are shown on registering keys, and pressure on one or more of these keys records the sum added to the drawer. James Ritty, of Dayton, Ohio, invented the first cash register in 1879.
- Cashaw**, West Indian name for mesquite, 13-4641
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- Cassio**, fish
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- Cassites**, ancient people, ruled Babylonia, 2-652
- Cassowaries**, birds, 13-4657
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- Castes**, in India, 8-2700, 2702
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- Castile**. Old and New Castile comprise roughly the whole of the centre of Spain, and contain Madrid, Toledo, Burgos, Segovia and Valladolid. They formerly made up the most important Spanish kingdom, their union with Aragon in 1479, under Ferdinand and Isabella, being the beginning of modern Spain.
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- Castilloa elastica**, tree, produces rubber, 8-2790
- Castling vote**. Deciding vote given by the president or chairman in certain cases where the voting on both sides is equal.
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- Cat-tail**, *see* Cattails
- Catacombs**, underground galleries, 2-576, 578
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- Catalepsy**. A medical term for a seizure in which the victim becomes unconscious, yet his body keeps the attitude assumed when he was smitten.
- Catalina Island**, California, radio station at, 17-6370
- Catalonia**. Old province of Spain, in the extreme northeast of the peninsula. The Catalans are hardy and hard-working, with a dialect of their own, and their country is one of the chief Spanish industrial centres, especially around the great port of Barcelona. A strong separatist feeling has existed in Catalonia for centuries.
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- Catalpa tree**, 13-4642-43
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- Catalufa**, fish
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- Catalysis**, chemical process, 13-4532
- Catapult**. A forked stick shaped like the capital letter Y. To each of the prongs a piece of elastic band is fastened, and the two elastics are joined by a square piece of leather. If a piece of stone is placed in the leather, which is pulled back and then let go, the stone will be thrown some distance. In ancient times a catapult was an engine of war used to throw darts of great size. French mortars used in the World War worked on the same principle.
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- Catching a Tartar**. Popular phrase for meeting more than one's match, Tartars having been considered formidable savages.
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- Chamber of Commerce**. An organization made up of the leading business men of a city or town to protect and promote their own commercial interests and the interests of the community.
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- Champagne**. French wine-growing district east of Paris, in the basins of the Seine, Aisne and Marne. Rheims and Epernay are the chief centres of the wine trade; other towns are Troyes, with large textile industries, and Châlons-sur-Marne.
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- Chapultepec** (Hill of Grasshoppers). A rocky hill on the outskirts of the city of Mexico. The Aztecs used it as a site for some kind of worship. At the end of the 18th century the Spanish viceroy built a palace on the hill. Later the Emperor Maximilian made this palace his headquarters. It is now the presidential residence. A military school and an observatory are also situated on the hill. In 1847 it was taken by the United States.
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- Charge of the Light Brigade**. Charge of 600 Light Dragoons, Lancers and Hussars at Balaklava in the Crimean War, October 25, 1854.
- Chariot**. The ancient chariot was a two-wheeled car or vehicle used in war, in racing and in processions as well as in the comings and goings of daily life. In the time of Queen Elizabeth of England the word had come to mean a four-wheeled state coach. Later it was used to describe an ornate pleasure vehicle.
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- Charon**, character in mythology, 9-3238
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- Charter Oak**. A tree in Hartford, Connecticut, around which an American historical legend grew up. In 1687 Governor Andros demanded the surrender of the colonial charter by the colonists. Captain Wadsworth hid the document, it is said, in a hollow tree, where it remained for two years. The oak was blown over in 1856, but a monument has been erected to mark the spot.
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- Château-Thierry**. During the World War, from July 15th to 18th, 1918, American troops successfully held the German forward movement at Château-Thierry, France.
- Châteaubriand, François, Vicomte de**. French philosophic writer, the most famous of his day; born, St. Malo, 1768; died, Paris, 1848.
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China Sea. Part of the Pacific lying west of the chain of islands fringing eastern Asia. It includes the Yellow Sea and the Gulf of Siam, its chief ports being Nagasaki, Shanghai, Foochow, Canton, Hong-Kong, Manila and Singapore.

Chinch-bug. A small black bug with white wings which is very destructive to wheat and other grains in the United States and the West Indies.

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Clyde. One of the most important rivers in the world, in western Scotland. It rises in the Lowther Hills and flows through Lanarkshire into the Firth of Clyde at Dumbarton, its basin being the chief industrial centre in Scotland and famous particularly for its shipbuilding trade. 106 miles long, it passes Lanark, Hamilton, Glasgow, Clydebank, Dumbarton, Port Glasgow, Greenock and Gourock, The Medwin, Mouse, South Calder, Kelvin, Duneaton, Douglas, Avon and White Cart are tributaries.

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Coalition. In politics the temporary combining of different parties or states to achieve a special object.

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Cobalt (Co). A metallic element which does not occur in a pure state, but is found in cobaltite and smaltite. Oxid of cobalt is used to give the blue color to china and pottery. Canada produces 90 per cent of the world's cobalt.

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- Cochin China.** French Indo-Chinese colony, covering about 26,476 square miles, largely in the Mekong delta. The soil is very fertile, producing rice, rubber, cotton, coconuts and tobacco. Saigon, the capital, is a thriving port.
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- Coligny, Gaspard de.** Admiral of France and Huguenot leader; born, Châtillon-sur-Loing, 1519; murdered in Paris on St. Bartholomew's Day, 1572.
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- Colonel**. An army officer in command of a regiment. Sometimes the title of colonel is conferred as an honor although the recipient is not in military service.
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- Colonies, American**, *see* Canada—history; United States—history—colonial period
- Colonies, English**, *see* England—colonies; *also* Canada; United States—history—colonial period
- Colonies, Roman**, purpose, 4-1194
- Colonna, Vittoria**. Michelangelo's friend and helper; born, Marino, near Rome, 1490; died, Rome, 1547.
- Color**, *see* Colors
- Colorado**. State in the Rocky Mountain system; area, 103,948 square miles; capital and largest city, Denver; agricultural products and stock-raising are important; silver, gold, lead, coal and petroleum are extensively produced. Abbreviation, Colo. Nickname, the "Centennial State." State flower, the columbine. Motto, "Nil sine Numine" (Nothing without God). "Colorado" comes from the Spanish word meaning "red." First settlement, thought to have been made at Denver, about 1859.
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- Colorado River**. Longest in the United States after the Mississippi and Missouri. Rising in the Rocky Mountains, it flows 2,000 miles into the Gulf of California, draining about 225,000 square miles. Much of its basin consists of an arid plateau, but in places irrigation is being carried out.
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- Coltsfoot**, flower, description, 17-6274
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- Picture*, first sight of Scotland, 8-2842
- Columbia**. Capital of the state of South Carolina, on the east bank of the Congaree River, below the junction of the Broad and Saluda rivers. Its manufactures are chiefly in cotton and fertilizers. Here is the University of South Carolina.
- Picture*, ruins of Millwood, 14-4899
- Columbia**, fishing schooner, note and picture, 11-4058
- Columbia River**. Rises in British Columbia; crosses international boundary between Canada and the United States, and after flowing across Washington forms part of the boundary between Washington and Oregon, and empties into the Pacific Ocean.
- named by Robert Gray, 5-1703
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- Columbus**. Capital of Ohio and a railway and commercial centre. Iron founding and the manufacture of margarine and rolling stock are the principal industries.
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- Committee of Public Safety**. An all-powerful
 committee set up on April 6, 1793, by the Con-
 vention in the French Revolution.
- Committee of the Whole**. In a legislative body
 when all the members sit in a deliberative
 rather than a legislative character (that is, they
 debate and consult upon a question before them)
 they are said to form a Committee of the Whole.
- Committees of Correspondence**. Committees of
 American colonists that came into existence
 before the American Revolution. These com-
 mittees prepared and circulated among the col-
 onists statements of grievances against the
 British Government. Then they discussed and
 planned measures of redress.
- Commodity**, term in economics, 14-5243
- Commodus, Lucius Aelius Aurelius**, Roman em-
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- Common carrier**. One who for hire, and invit-
 ing the patronage of the public, undertakes to
 convey persons or things from one place to an-
 other. Railways, steamship lines, express com-
 panies are examples of common carriers.
- Commons, House of**, Canada, *see* Canada—
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- Commons, House of**, England, *see* House of
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- Commune**, in France, 10-3573, 3576
- Como, Lake of**. Beautiful lake in northern
 Italy, fed by the Adda. Lying due north of
 Milan, it is 55 square miles in extent, being
 about 43 miles long, and from one to two and
 a half miles broad.
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- Conan, Laure**, pen name of Félicité Angers,
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- Concepción**. Chief port of southern Chile.
- Concert of Europe**. Since the Congress of
 Vienna (1814-15) the name given to an agree-
 ment between the great powers to take com-
 bined action on questions of common interest.
- Concord, Mass.**
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- Concord**. Capital of the state of New Hamp-
 shire, on the Merrimac River. Nearby are the
 extensive granite quarries. Carriages, silver-
 ware, harness, furniture, flour, cotton and
 woolen goods, pianos, etc. are manufactured.
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 here.
- Concord, Battle of**, 4-1163-64
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- Condottieri**. Bands of adventurers in Italy in
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- Conduct of life**
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- Congress, Library of**, *see* Library of Congress
- Congress Colors**, first official American flag,
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- Congress of U. S.**, *see* United States—Congress
- Congressional Record**. Official printed reports
 of the proceedings of both houses (Representa-
 tives and Senate) in the United States Congress.
 It is not always an exact account, because mem-
 bers are allowed to revise their speeches before
 they are printed, and sometimes permission is
 given to members to have printed in the Record
 speeches which were never delivered in the
 Congress. The Record under different names
 has been published since 1799.
- Coniston, Lake**. One of the largest lakes of the
 English Lake District, in Furness, Lancashire.
 It is 5 miles long and half a mile broad.
- Conjuring**, *see* Tricks
- Connard, Philip**, English artist, 8-2860
- Connaught, Duke of**, governor-general of Can-
 ada, and Sir Richard Owen, 2-593
- Connaught**. Western province of Ireland, com-
 prising Galway, Leitrim, Roscommon, Sligo and
 Mayo. Mountainous and boggy, with several
 large lakes, it has only two towns, Galway and
 Sligo, with more than 10,000 people. Area, 6,863
 square miles.
- Connaught Tunnel**. A double-track tunnel, about
 5 miles long, through Selkirk Mountains, Can-
 ada, on Canadian Pacific Railway.

GENERAL INDEX

Connecticut. One of the original thirteen states of the United States; area, 4,965 square miles; capital, Hartford. Manufactures of many sorts are important, at Bridgeport and New Haven, the largest city, especially. Building stones are found. Abbreviation, Conn. Nickname, the "Nutmeg State." State flower, the mountain laurel. Motto, "Qui Transtulit, Sustinet" (He Who Transplanted Still Sustains). "Connecticut" comes from the Indian word meaning "River of Pines." First settlement, thought to have been at Windsor, about 1633.

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Connecticut River. American river, rising in Connecticut Lake, New Hampshire; empties into Long Island Sound. 419 miles.

Connor, Ralph, pen name, *see* Gordon, Charles William

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Conquerors of the sea, * 17-6397-6408
Conrad, Joseph. English novelist of Polish parentage; born in the Ukraine, 1857; died, 1924.

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Constance. Ancient German cathedral city on the Lake of Constance, trading in linen. Here John Huss was burned, 1416.

Constance, Lake of. Second largest lake of the Alpine region, lying between Switzerland, Germany and Austria. 205 square miles in extent. It is drained by the Rhine.

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Constantine XIII, Byzantine emperor, at fall of Constantinople, 1453, 13-4798, 4800

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Consular service. That branch of the government of a sovereign state which comprises agents and assistants commissioned to reside in foreign towns or cities to protect the interests of its own citizens as well as his government's commercial interests. As a rule a member of the consular service has no diplomatic powers.

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Contempt of court. The law term given to open disrespect or disobedience to the rules or orders of a court; also to an unreasonable interruption of the proceedings of a court.

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Continental Shelf, the sea-covered plain that borders the shore of a continent or an island. It is like a platform from which the dry land rises in relief. The width of the shelf varies considerably. The abrupt drop of the edge to the depth of ocean is called the continental slope.

Continents
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Contraband. Anything which the laws of a country forbid to be either imported or exported

Contract. An agreement or bargain between two or more people or groups of people in which each signer binds himself to carry out certain provisions mentioned in the agreement.

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- Coosa River**. American river, rising at the junction of the Oostenaula and Etowah rivers, Georgia. Empties into Alabama River. 350 miles.
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- Copper (Cu)**. One of the important commercial minerals. It is red in color, soft, and in its natural state occurs in irregular masses. Often it is united with sulphur, iron, etc., and these combinations have a characteristic bluish, greenish or goldish color. Cuprite, malachite, azurite, chalcocite, chalcocypirite and bornite are the best-known copper ores. The United States is the world's greatest copper-producer. Canada and South America have also great deposits.
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- Coppermine River**. A river of northern Canada, flowing into Coronation Gulf. Discovered by Samuel Hearne in 1771. Visited by Sir John Franklin in 1821. 525 miles.
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- Cordova**. Ancient and picturesque Spanish city in Andalusia, being inclosed by massive turreted walls. Famous in Moorish times, it has a cathedral built as a mosque in the 8th century. the most magnificent of its kind in Europe.
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- Cork**. Second city and port of the Irish Free State, and capital of County Cork. Standing 11 miles above the entrance of the Lee to Cork Harbor, it has a great export of agricultural and dairy produce, and is the commercial and manufacturing centre of Munster. There are Anglican and Catholic cathedrals.
- Cork**. Southernmost county of Ireland, in Munster. Agriculture and some mining are carried on; dairying is important; and Cork, the capital, Queenstown, Youghal and Kinsale are prominent as ports. Area, 2,890 square miles.
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- Corneille, Pierre**. French poet and writer of plays; first great dramatist of France; born. Rouen, 1606; died, 1684.
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- Cornel**, flower
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- Cornell, Ezra** (1807-74). American engineer and contractor, born, Westchester Landing, N. Y. Founder of Cornell University, Ithaca, New York.
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- Corolla**, part of flower, 2-506
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- Coronado, Francisco Vasquez de**. The Spanish explorer of the southwestern part of the United States of America. In 1539 he marched northward from Mexico to Colorado and Kansas and discovered the Grand Canyon of the Colorado River. He is supposed to have been born about 1500 and to have died about 1545.
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- Coroner**. A county or municipal officer who holds inquests on the bodies of persons who have died violent deaths.
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- Corsica**. Island department of France; area, 3,367 square miles; capital, Ajaccio. Rugged and picturesque, it rises to nearly 900 feet in Monte Cinto and Monte Rotondo, the people being engaged chiefly in stock-raising and fishing, though large quantities of olives and chestnuts are grown. It belonged to Genoa up to 1768, when it was sold to France; but it was not till the defeat of the patriot Pasquale Paoli in 1796 that the French finally occupied it. Bastia, Bonifacio, Calvi and Corte are among the principal towns.
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- Cossacks**. A Russian military tribe living originally on the steppes about the lower Don and the Dnieper rivers. Later, bands spread to Siberia, the Caucasus and eastern Russia. Before the Russian Revolution in 1917 the Russian army had several noted cavalry regiments recruited from Cossack tribes and known by that name.
- Costa Rica**. Republic of Central America; area, 23,000 square miles; capital, San José. Coffee, sugar, cacao, hides and hardwoods are exported. Limon, on the Atlantic, a banana port, connects by rail with Puntarenas on the Pacific.
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- Credit**. In business, confidence of a seller in a purchaser who does not pay cash but promises to pay at a future date.
- Credit, Letter of**. An order from a bank in one place that enables the holder of the order to receive money in another place or places. The holder pays into the bank or puts up security guaranteeing the sum of money for which the letter of credit is made out.
- Credit Mobilier of America**. A joint-stock financial company chartered in Pennsylvania in 1863. It became the centre of a congressional scandal through its alleged corrupt operations in connection with the building of the Union Pacific Railroad, 1872-73.
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- Cremona**. Ancient Italian city on the Po, with a fine cathedral and the highest belfry campanile in Italy. It was formerly famous for its violins; the most famous maker being Stradivarius. Amati and Guarneri also were Cremonese.
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- Crete**. Important Greek island lying across the southern end of the Aegean Sea; area, 3,320 square miles; chief towns, Candia and Canea. Though mountainous, it contains fertile valleys where figs and olives are extensively grown; but it is famous chiefly for its splendid Minoan ruins at Knossos, the most remarkable of their kind. It became part of Greece in 1914.
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- Crimea**. Peninsula on the north coast of the Black Sea. It was under Turkish rule from 1475 to 1792, when it was ceded to Russia. Sebastopol and Simferopol are the chief towns.
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- Crispinian**, brother of St. Crispin, 6-1997
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- Croatia**. District of Jugo-Slavia, formerly part of Hungary. It is mainly agricultural and pastoral; Zagreb, or Agram, the capital, being the only considerable town. The people are 65 per cent Roman Catholic Croats and 35 per cent Greek Orthodox Serbs.
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- Customs duty.** A tax placed by the government of a country on goods brought in from a foreign country. In some countries this tax is placed also upon goods exported to other countries.
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- Cuzco.** Ancient city of Peru, having been founded in the 11th century by Manco Capac, the first Inca. It was captured by Pizarro in 1533. It has one of the finest cathedrals in South America and abounds in Inca remains.
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- Dahomey.** French West African colony between the Gold Coast and Nigeria. Porto Novo is the capital, and corn, palm-oil, kola nuts and dried fish are the chief exports.
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- Damascus.** Ancient Syrian city with over 200 mosques. Once famous for damask and sword-blades, it makes silver and gold ornaments, cottons, woollens and silks.
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- Danube**. Most important river of Central Europe, and one of the finest in the world. It rises in Germany, in the Black Forest, and flows into the Black Sea through Austria, Czecho-Slovakia, Hungary, Jugo-Slavia, Bulgaria and Rumania. It is 1,725 miles long, with 300 tributaries and a drainage basin of 315,000 square miles. The most important cities it passes are: Ulm, Regensburg and Passau in Germany; Linz and Vienna in Austria; Pressburg in Czecho-Slovakia; Budapest in Hungary; Rustchuk in Bulgaria; and Braila, Galatz, Ismail and Sulina in Rumania. Its chief tributaries are the Iser, Inn, Raab, Waag, Drave, Morava, Theiss, Sereth and Pruth. River steamers can go up it to Linz, but ocean steamers cannot pass the Iron Gates.
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- Danzig**. Ancient Baltic Hanseatic port, formerly German, but now under the League of Nations. It stands in a small territory at the mouth of the Vistula.
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- Dardanelles**. Narrow strait connecting the Aegean Sea and the Sea of Marmora, and dividing Europe from Asia Minor. 47 miles long and from three to four miles broad, it was known to the ancients as the Hellespont.
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- Dauphin**. The title of the eldest son of the king of France until the Revolution of 1830, when its use was abolished.

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- Deferred annuity.** An annuity is an investment of money entitling the investor to a regular income, frequently until death occurs. A deferred annuity is an annuity on which payment is deferred or delayed until the beneficiary has reached a certain age.
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- Demerara.** A river of British Guiana emptying into the Atlantic at Georgetown. An early settlement on its banks gave Demerara its name. 200 miles.
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- Democratic Party.** One of the major political parties in the United States tracing back to Thomas Jefferson. It was called Republican at first, then Democratic-Republican, but about 1828, the second half of the name was dropped. In general the party has favored in the past strict construction of the Constitution, low tariffs, and broad suffrage, though this is not so true to-day.
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 The centre of a great mining district, it has
 smelting and refining works, and trades also in
 cattle.

Picture, civic centre, 19-6845

Denys, St. Athenian, called Dionysius, who was
 made Bishop of Athens by St. Paul, and after-
 ward sent by St. Clement to convert the people
 of Paris, finally suffering death at their hands
 on Montmartre. The patron saint of France.

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Dervish. A Mohammedan belonging to a special
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 monks of Christendom. There are different orders
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 vishes; the Howling Dervishes; and the Wandering
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 founder of modern philosophy; born, La Haye,
 Touraine, 1596; died, Stockholm, 1650.

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 The surrounding region is rich in vast deposits
 of bituminous coal which has greatly aided the
 industrial growth of the city. Its site is pic-
 turesque, on gently rolling hills.

Des Moines River. American river, rising in
 Lake Shetek, Minnesota. Flows into the Mis-
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Detroit. Fourth largest city of U. S. A., in
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- Dniester.** River rising in the Carpathians, in Poland, and flowing between Russia and Rumania into the Black Sea. 800 miles
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Dominica. British West Indian island, largest of the Leeward group; area, 305 square miles; capital, Roseau. It produces limes, cocoa, coconuts, oranges, spices and coffee, and has hot springs and a boiling lake.

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Don. River rising south of Moscow and sweeping through central Russia into the Sea of Azov. It passes Voronezh, Novo Tcherkask and Rostov, and drains 166,000 square miles, its chief branch being the Donetz, 1,125 miles.

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Douglass, Frederick (1817-95). American Negro orator and anti-slavery leader; minister to Haiti, 1889-91.

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Douro. River of Spain and northern Portugal. Rising in the Pico de Urbion, it flows into the Atlantic below Oporto, passing Soria and Zamora in Spain and an important wine-growing district in Portugal. 485 miles long, it is navigable for 90 miles, and has a basin of 37,500 square miles.

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Dover. Capital of the state of Delaware, and the county seat of Kent County. It is on the St. Jones River, 48 miles from Wilmington, in a good fruit-growing region and has fruit-canning and evaporating works.

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Dover. Kentish port on the Strait of Dover, with an important passenger-steamship traffic with Calais. The Roman Dubris, and later chief of the Cinque Ports, it was very important in the Middle Ages; the ancient castle has a fine Norman keep.

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Down. Maritime county of northern Ireland, area, 957 square miles; capital, Downpatrick. Cotton- and flax-spinning and the manufacture of linen and muslin are leading industries, Newry and Newtownards being among the chief towns. Here are the Mourne Mountains.

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 and an immense trade in grain and timber.
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Duma. Representative assembly of the Russian
 empire under the Tsarist régime. First formed
 in 1905, it worked under constant difficulties
 until the Revolution of 1917.
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 ical novelist and writer of plays; born, Villers-
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 on the Firth of Tay, in Forfarshire. Has great
 jute, hemp and flax manufactures, considerable
 shipbuilding, preserving, dyeing and engineer-
 ing industries, and is the chief centre for the
 British whale and seal fisheries.
Dunedin. Chief manufacturing centre of New
 Zealand, in South Island. It is also a great uni-
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 Scottish thinker and schoolman of the Middle
 Ages. He joined the Franciscan Order, studied
 at Oxford, then became a professor of theology.
 He removed to the Continent and won a reputa-
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Durazzo. Ancient Dyrrhachium, Adriatic port.
 Sought by the Serbians as an outlet to the sea
 in 1912; opposition of Italy and Austria-Hun-
 gary gave the port to Albania.
Durban. Commercial capital and port of Natal,
 with a fine modern harbor. A very handsome
 place, it is the greatest port on the African
 east coast, and exports much coal.
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Durbar. Court or council of a native ruler in
 India; also an official reception or state cere-
 mony. Specially magnificent durbars at Delhi
 have marked the proclamation of successive
 British sovereigns as emperors of India.
Dürer, Albrecht, German painter and engraver.
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Durham. Northern English county; area, 1,013
 square miles; capital, Durham. Containing one
 of the chief English coal-fields, it also produces
 iron, lead, salt and limestone; while the ship-
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 are important.
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Duse, Eleonora. Italian tragedienne. Born,
 Vigevano, Italy, 1861, died, Pittsburgh, Pa.,
 1924, while on tour. She was Italy's greatest
 actress and was the inspiration of many of
 Gabriele d'Annunzio's plays.
Düsseldorf. German city on the Rhine with
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Dwellings. *see* Houses
Dwina, Northern. Russian river flowing into the White Sea. 1,000 miles long, it drains 140,000 square miles, and is free from ice for half the year.

Dyaks. Head-hunting cannibals of Borneo who belong to the Malayan division of the Oceanic Mongols. They live in huts built on piles.

Dyck, Sir Anthony van, *see* Van Dyck, Sir Anthony

Dyeing. The coloring by artificial means of silk, wool, cotton, straw, fur, leather, etc., so that the colors thus given will not be removed easily through washing, light or other natural bleaching influence. The art of dyeing is very ancient and extended to all known peoples of the world.

Dyer, Sir Edward, *see* Poetry Index for poem and note

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Dying Gaul, statue, formerly called Dying Gladiator, 12-4460, 4467

Picture (gravure), 4-1208

Dykes, *see* Dikes

Dynamite. A powerful explosive consisting of nitroglycerine with some absorbent. It is exploded by a percussion fuse containing fulminating mercury. It has a disruptive force ten times as great as gunpowder.

Dynamos, *see* Electric generators

Dyspepsia. Stomach trouble or gastric derangement whereby the powers of digestion are impaired.

Dziggetai, animal, 6-2020



E Pluribus Unum. The motto of the United States, from the Latin meaning "Out of Many, One." First appeared on the design for the Great Seal recommended to the Continental Congress in 1776.

Eads, James B. (1820-87). American engineer and bridge builder.

Eagle. A gold coin of the United States (value \$10), from the eagle on the reverse. There are also a gold double eagle (\$20), a half eagle (\$5) and a quarter eagle (\$2.50).

Eagle-rays, name for devilfishes, 16-5774

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- Why do our ears seem to sing at times? 2-687

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Earl, Maud, artist

Picture, End of the Trail, 2-711

Earl. Title which in feudal times meant that its holder was ruler of a county. In Great Brit-

Earl (continued)

ain and Ireland an earl ranks below a marquis and above a viscount. It corresponds to the title of count as used on the Continent. Hence, an earl's wife is a countess.

Earle, Ralph, American painter
Picture, Lady Williams and child, 3-969

Early, Jubal Anderson (1816-94). American soldier, born in Virginia. He graduated from West Point, but resigned from the army to practice law; served in the Mexican War; entered the Confederate service, and served to end of war. in the Shenandoah Valley, 7-2442

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East Indies. Archipelago lying between Asia and Australia, the greater part belonging to Holland. The Dutch East Indies include Sumatra, Java, Celebes, the Moluccas and parts of Borneo, Timor and New Guinea, and have altogether an area of 733,642 square miles. lost continent, 8-2717-18

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Ebro. Only large Spanish river flowing into the Mediterranean. Rising in the Cantabrian Mountains, it enters the sea near Tortosa, passing Logroño, Tudela and Saragossa, 440 miles.

Ecce homo. Latin for "Behold the man." The expression used by Pilate when Christ appeared before the mob; also the title of a book by Sir J. R. Seeley and of famous paintings by Correggio and by Guido Reni.

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Ecuador. Equatorial republic of South America; capital, Quito. It lies among the Andes, and contains some of their highest peaks, notably Chimborazo and Cotopaxi, the highest volcano. Cotton, cocoa, indiarubber, coffee, tobacco and medicinal plants are exported, chiefly through the port of Guayaquil.

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Edgeworth, Maria, author, 6-2257; 11-3894

Picture, portrait, 6-2255

Eddy, Mrs. Mary Baker, founder of Christian Science, 14-5269-70

Picture, portrait, 14-5266

Edict of Nantes, 1598. Religious freedom in France established. Huguenots were given equal political rights with Catholics.

Edinburgh. Capital of Scotland, on the Firth of Forth. An important commercial and educational centre, it is one of the finest and most historic places in Great Britain, among its many famous buildings being the castle, Holyrood Palace, the Tolbooth, the cathedrals of St. Giles and St. Mary, and John Knox's house. The university, founded in 1583, has a famous medical school. It now includes the port of Leith on the Firth of Forth.

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Egypt. Kingdom of northeast Africa, almost entirely within the Nile basin; area, 350,000 square miles; capital, Cairo. A centre of civilization for thousands of years, and later a Roman province, 30 B.C.—A.D. 639, it was conquered by Moslem invaders, and became Turkish in 1517; the British occupied it 1882-1922. Egypt depends for its prosperity on the summer flood of the Nile, which fertilizes 5,400,000 acres. Irrigation is enormously aided by the Assouan Dam and Assiout Barrage; the water stored by them enables huge crops of barley, wheat, beans, cotton and lentils to be raised. The people are engaged chiefly in agriculture, and are mostly Moslems, but there are over 854,000 Coptic Christians and about 200,000 Europeans. Antiquities abound, notably the Pyramids and the ruins of ancient Thebes near Luxor. Alexandria, Port Said, Tanta, Assiout, Zagazig, Suez and Damietta are the chief towns.
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- Ekaterinburg**. Russian mining centre in the
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 cathedrals. Tsar Nicholas II and the royal
 family are said to have been killed there in
 1918.
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- Elba**. Italian island off the coast of Tuscany;
 area, 90 square miles; capital, Porto Ferrajo.
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- Elbe**. German river rising in Bohemia and
 flowing into the North Sea. Navigable for
 most of its course, it passes Dresden, Meissen,
 Magdeburg, Hamburg, Altona and Cuxhaven,
 and has an immense trade. The Moldau, Eger,
 Havel and Saale are its tributaries, and its basin
 covers 57,000 square miles. 725 miles.
- Elberfeld**. German textile, dyeing, and iron-
 and steel-making centre in Rhenish Prussia. It
 is connected with Barmen by a hanging railway.
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- El Dorado**. Literally "the gilded," an imagi-
 nary city or district abounding in gold, sup-
 posed by the Spaniards of the 16th century to be
 in South America.
- Eleanor of Castile**, wife of Edward I of England
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- Election**. The choosing by vote to fill an office
 or to membership in a society, as by ballot, up-
 lifted hands, or by word of mouth. In law, the
 choice of an alternative course.
- Election Day**. 6-2093; 20-7565
- Electoral College**. In the United States the body
 of presidential electors of a state, also the whole
 body of presidential electors composed of the
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Elements, with their chemical symbols and
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| | | | | | |
|-----------------|----|--------|-----------------|----|--------|
| Aluminium | Al | 27.1 | Molybdenum | Mo | 96 |
| Antimony | Sb | 120.2 | Neodymium | Nd | 144.3 |
| Argon | Ar | 39.9 | Neon | Ne | 20.2 |
| Arsenic | As | 74.96 | Neoytterbium | | |
| Barium | Ba | 137.37 | (see Ytterbium) | | |
| Beryllium or | | | Nickel | Ni | 58.68 |
| Glucinum | Be | 9.1 | Niton | Nt | 222.4 |
| Bismuth | Bi | 208 | Nitrogen | N | 14.008 |
| Boron | B | 10.9 | Osmium | Os | 190.9 |
| Bromine | Br | 79.92 | Oxygen | O | 16 |
| Cadmium | Cd | 112.4 | Palladium | Pd | 106.7 |
| Cæsium | Cs | 132.81 | Phosphorus | P | 31.04 |
| Calcium | Ca | 40.07 | Platinum | Pt | 195.2 |
| Carbon | C | 12 | Potassium | K | 39.1 |
| Cerium | Ce | 140.25 | Praseo- | | |
| Chlorine | Cl | 35.46 | dymium | Pr | 140.9 |
| Chromium | Cr | 52 | Radium | Ra | 226 |
| Cobalt | Cb | 58.97 | Rhodium | Rh | 102.9 |
| Columbium | Cb | 93.1 | Rubidium | Rb | 85.45 |
| Copper | Cu | 63.57 | Ruthenium | Ru | 101.7 |
| Dysprosium | Dy | 162.5 | Samarium | Sa | 150.4 |
| Erbium | Er | 167.7 | Scandium | Sc | 44.1 |
| Europium | Eu | 152 | Selenium | Se | 79.2 |
| Fluorine | F | 19 | Silicon | Si | 28.3 |
| Gadolinium | Gd | 157.3 | Silver | Ag | 107.88 |
| Gallium | Ga | 70.1 | Sodium | Na | 23 |
| Germanium | Ge | 72.5 | Strontium | Sr | 87.63 |
| Glucinum | | | Sulphur | S | 32.06 |
| (see Beryllium) | | | Tantalum | Ta | 181.5 |
| Gold | Au | 197.2 | Tellurium | Te | 127.5 |
| Hafnium | Ha | — | Terbium | Tb | 159.2 |
| Helium | He | 4 | Thallium | Tl | 204 |
| Holmium | Ho | 163.5 | Thorium | Th | 232.15 |
| Hydrogen | H | 1.008 | Thulium | Tm | 168.5 |
| Indium | In | 114.8 | Tin | Sn | 118.7 |
| Iodine | I | 126.92 | Titanium | Ti | 48.1 |
| Iridium | Ir | 193.1 | Tungsten | W | 184 |
| Iron | Fe | 55.84 | Uranium | U | 238.2 |
| Krypton | Kr | 82.92 | Vanadium | V | 51 |
| Lanthanum | La | 139 | Xenon | X | 130.2 |
| Lead | Pb | 207.2 | Ytterbium | | |
| Lithium | Li | 6.94 | or Neoyt- | | |
| Lutecium | Lu | 175 | terbium | Yb | 173.5 |
| Magnesium | Mg | 24.32 | Yttrium | Y | 89.33 |
| Manganese | Mn | 54.93 | Zinc | Zn | 65.37 |
| Mercury | Hg | 200.6 | Zirconium | Zr | 90.6 |

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Elijah. An Israelitish prophet whose dramatic
 story is told in the Books of Kings. He fear-
 lessly rebuked the evil doings of King Ahab,
 always asserting the superiority of Jehovah
 to the other gods. He held no official position,
 sometimes communing in the desert alone,
 sometimes appearing at court. Finally he ex-
 perience translation, being carried on a whirl-
 wind to heaven.

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Elizabeth, sister of Louis XVI of France, and
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Elizabeth Christine, queen of Prussia, 11-4046

Elizabeth of Hungary, St. Born at Presburg,
 Hungary, 1207, daughter of King Andrew II of
 Hungary and a lover of the poor from child-
 hood. She died in 1231, at the age of 24, from
 hardship, after living in a dilapidated hut and
 devoting her life to caring for the poor.

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Ellis Island, in New York Harbor, since 1891
 U. S. Immigrant station.

Ellsworth, Lincoln. American engineer and
 polar explorer. Born, 1881. After graduation
 from Columbia University went on important
 geological and exploring expeditions in Canada,
 Yucatan and the Andes. In 1925 accompanied
 Captain Roald Amundsen on his unsuccessful
 attempt to reach the North Pole by airplane.
 In 1926 was one of the leaders of the Amundsen-
 Ellsworth-Noble expedition which crossed the
 Pole from Spitzbergen to Alaska by the airship
 Norge in May, 1926. Ellsworth financed, in
 large part, these last two expeditions.

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Elsinore, or **Helsingör**. Danish port on the
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- Emancipation Act**, 1829. Act which freed Roman Catholics from civil and religious disabilities in the United Kingdom.
- Emancipation of the Slaves**. Act of August, 28, 1833, by which slavery was abolished throughout the British colonies.
- Emancipation Proclamation of Lincoln**, terms of, 7-2436
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- Embargo**. As applied to shipping, a government decree forbidding the entry or departure of commerce at ports, if on enemy's ships a hostile embargo, if on domestic a civil embargo. Applied generally, a prohibition imposed by law on commerce in any branch.
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- Embryo**. A young organism in the early stages of development. In botany, the germ which forms within the ovule on fertilization and which becomes the principal part of the seed; in physiology, the unborn young up to the time of birth.
- Embryology**. The science which deals with the formation and development of embryos.
- Emelye, Romance of the Lady**, by Chaucer, 13-4771
- Emerald**, account of, 19-7228
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- Emeritus**. Latin for "retired"; generally applied to a professor.
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- Emery**. A variety of corundum, containing chiefly alumina and oxid of iron. It occurs both massive and disseminated, being found in Asia Minor as lumps in crystalline limestone. Most of the emery used in America comes from Turkey, but emery occurs in Massachusetts, New York, North Carolina and Georgia. On account of its great hardness it is used for grinding, cutting and polishing.
- Emigration**. The departure from the place of abode for residence in another. Immigration is the same but viewed from the point of view of the country which receives the new-comer, or immigrant. In the United States admission is regulated by quota from each country (2 per cent of the number of persons born in that country who were residents of continental United States as shown by the 1890 Census). In Canada it is by selection.
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- Ems**. German river rising in the Teutoburger Wald and flowing into the Dollart near Emden, 210 miles.
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- En passant**. French phrase meaning "in passing"; by the way; also a term used in chess.
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- Engadine**. Valley in the Swiss canton of Grisons, traversed by the Inn. Here are St. Moritz and Pontresina.
- Engine, Traction**, see Traction engine
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- England**. Southern and largest country of Great Britain; area, 50,900 square miles; capital, London. Divided from Scotland by the Cheviot Hills, it contains in the north the Lake District, the Pennine Chain, and the Cumbrian Mountains, with Scawfell Pike (3,210 feet); the centre and east are generally flat, and the south largely undulating downland. The largest rivers are the Thames, Severn, Trent, Great Ouse and Yorkshire Ouse, but the Tyne, Tees, Lower Avon and Mersey are among the most important. The chief industrial areas are in the North and North Midlands, where coal is found over a large area. Northumberland and Durham are famous for their shipbuilding and chemical trades; Lancashire for cottons and engineering; Yorkshire for woollens, worsteds, iron and steel; Cheshire for salt; and the Midlands for hardware, pottery, hosiery and lace. London, however, is easily the most important commercial centre, while agriculture and stock-raising flourish almost everywhere. There are valuable North Sea fisheries. The greatest industrial centres are Birmingham, Manchester, Sheffield, Leeds; and Bradford, Liverpool, Bristol, Hull, Newcastle-on-Tyne, Portsmouth, Plymouth, Southampton, Sunderland and Birkhead are famous as ports.
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- English. The people of a composite race who inhabit England. The prevailing race is long-headed, descended from the Nordic Saxons and their kindred peoples from Northern Europe. The short dark Mediterranean Iberians and the tall round-headed Celtic descendants of the Bronze Age have been absorbed by these Anglo-Saxons. The amalgamation of the stolid, just, sympathetic, haughty and dominating Saxon and the quick-witted, imaginative, impulsive and mercurial Celt has produced a people of over 120 millions, who inhabit the United States of America, Canada, Australia, New Zealand and South Africa, as well as their English homeland.

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- Eritrea**. Italian territory on the Red Sea, occupied in 1890. It exports hides, butter, palm-nuts, gold, ostrich feathers and mother-of-pearl. Its capital, Asmara, is connected by railway with the port of Massawah.

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- Etching.** From a Dutch word meaning "to feed" or "to eat." In art, the process of engraving upon glass or metal by the corroding action of acid. A plate is covered with a ground (some preparation of wax or varnish) that will resist acid. The drawing is scratched into the ground with a point; the plate is bathed in an acid which eats into the metal where exposed. When the ground has been removed the plate is inked, then wiped, and impressions are taken from it upon paper.
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- Ethelbert, St.** King of Kent, who, with his people, was converted by St. Augustine in 597. He founded the great cathedrals of Canterbury and Rochester and the Church of St. Paul in London.
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- Europe.** Second smallest, but most important of the continents, having well over a hundred people to the square mile. Its area is estimated at 3,885,828 square miles. The most remarkable feature of Europe is its immense length of coast-line, measuring nearly 50,000 miles, as compared with Africa's 15,000 miles; it has many inland seas and large numbers of islands. Two-thirds of its area consists of a great plain stretching across Northern Europe from the Ural Mountains to the North Sea; but in the north are the mountains of Scandinavia and in the south the great Alpine system. The Iberian, Italian and Balkan peninsulas each have their own mountain ranges. Europe is generally well watered, and has many fine rivers, notably the Volga, Danube and Rhine, which are all important waterways. A great part of its area is under cultivation, and large crops of cereals are grown, especially in Russia. Great Britain, Belgium, Germany, Spain, Austria, Sweden and the Ural Mountains have great mineral wealth; Rumania, Poland and Russia produce large quantities of petroleum. The population is fairly evenly divided between the Teutonic, Latin and Slavonic races; the Teutons include the English, Germans, Dutch, Flemings, Danes, Norwegians and Swedes; the Latins the French, Spanish, Portuguese, Walloons, Italians, Rumanians and Greeks; and the Slavs the Russians, Poles, Slovenes, Slovaks, Czechs and Serbs. The population of Ireland, Wales, Brittany and the Scottish Highlands consists largely of Celts; while on the Continent there are several non-Aryan races, including Finns, Magyars, Turks, Tartars, Bulgarians and Basques. Of the 28 European states, 11 are kingdoms and 15 republics, 2 are principalities; while Ireland is a self-governing dominion of the British Empire.
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- Evening star**. One of the planets (as Venus, Jupiter or Mercury) when seen shining in the western sky after sunset.
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- Everlasting**, plant, pearly everlasting, 19-6940
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- Evidence**. In law: (a) a document or instrument by which a fact is made evident; (b) a witness—one who furnishes testimony; (c) testimony—information tending to make clear the fact in question in a trial or legal investigation.
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- Evolution**. The theory that all species, genera, orders, classes, etc., of animals and plants now existing are derived or descended from a few simple forms of life, or even from one.
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- Ex cathedra**. Latin for "judicially" or "officially"; literally "from the chair."
- Ex libris**. Latin for "from the books," used in book plates and followed by the name of a person.
- Ex nihilo nihil fit**. Latin for "from nothing comes nothing."
- Ex officio**. Latin for "by virtue of one's office."
- Ex parte**. Latin for "on one side"; biased.
- Ex post facto**. Latin *ex*, from; *post*, after; *factus*, done; done afterward, or referring to a former state of facts. An *ex post facto* law is one which operates on matters which had taken place before it was passed.
- Excelsior**. Latin for "higher."
- Excise**, a tax or duty upon commodities of domestic production, levied upon their manufacture, sale or consumption. It usually taxes expenditure on luxuries, such as tobacco and spirits. Such duties were not general in the United States before the Civil War.
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- Exempli gratia**. Latin for "for example"; frequently written e.g.
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- Exeter**. Capital of Devonshire, England. Still partly surrounded by walls, it has a medieval guildhall.
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- Exmoor**. Moorland tableland in Devonshire and Somerset in which the Exe rises. The scene of Blackmore's novel Lorna Doone is laid in it. Its highest point is Dunkery Beacon, 1,707 feet.
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- Explosive**. A substance, such as dynamite, gunpowder or nitroglycerine, which by its combustion or decomposition will generate a gas with so great rapidity that it can be used in firearms or for blasting.
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- Extradition**. The act of delivering or giving-over by one state or nation to another, as when a fugitive from justice is sent back by the state or country in which he has taken refuge.
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Facta non verba, Latin for "deeds not words."

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Farragut, David Glasgow (1801-70). American admiral, born in Tennessee. He entered the United States Army in 1810 and had a long and brilliant career.
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Farther India. Name for Straits Settlements and Malaya.

Farthing. An English piece of money whose value is one fourth of an English penny.

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Fashoda. Sudanese town on the White Nile, 470 miles south of Khartoum.

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Fatimites. Arabian dynasty of Calliphs in Egypt which reigned over North Africa and Syria 909-1171; descended from Fatima, daughter of Mohammed.

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Faux pas. French for "false step, or mistake."

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Fawkes, Guy, plot of, 6-1974

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 Why do birds cast their feathers every year? 17-6290

February. The second month of the year, named for a Roman festival, *februa*. It has 28 days ordinarily, but in leap years, that is, in every fourth year, it has 29 days.

Federal Reserve Board. A board of seven members, at Washington, acting as the directing head of the Federal Reserve system of banking established in the United States by the Federal Reserve Act of 1913. Under this act the country is divided into 12 districts, each with its Federal Reserve bank and some of these have branches. Stock in the Federal Reserve banks is owned by the banks of the district. National banks must belong to the system, and State banks may join. The Federal Reserve Board issues paper money based upon gold, and the 12 banks may in emergencies issue notes based upon commercial paper and other approved securities.

Federal Trade Commission. A non-partisan commission of five members appointed by the president of the United States to "prevent persons, partnerships or corporations, excepting banks and common carriers subject to the acts to regulate commerce, from using unfair methods of competition in commerce."

Federalist, papers about U. S. Constitution, 12-4450; 20-7560

Federalist Party. The term Federalist was first used for those in favor of ratifying the Constitution but soon came to mean those in favor of a strong central government with limited suffrage. It opposed the War of 1812, and went to pieces after it ended.
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Federated States of Malay, 9-3184

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Faisal. First king of Iraq, or Mesopotamia; son of King Hussein of Hedjaz. He was created king in 1921.

Feldspar. The name given to a group of minerals made up of silica, alumina and potash or soda. A feldspar is opaque, has a glassy lustre and varies in color from flesh-red to white, with some beautiful exceptions. Feldspars make up about 60 per cent of the world's crust and are the most important part of granites, gneisses and lavas.

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- Felony.** The highest class of crimes as they are graded by statute. In most states of the United States it is a crime punishable by death or by confinement in the penitentiary or state prison.
- Felt.** A fabric of short hair or wool, or of wool and fur, matted together. The matting is accomplished, with the aid of heat and moisture, by rolling, beating and pressure. It is used for hat-making, linings for garments, floor coverings, etc.
- Fenelon, François de Salignac de la Mothe,** French author, 18-6714
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- Fenians.** The members of the Fenian Brotherhood, an association of Irishmen which was founded in 1857 in New York. Its object was to secure the independence of Ireland, and was only a part of a world-wide movement.
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- Ferdinand, surnamed the Catholic.** First king of all Spain; born, Sos, Aragon, 1452; died, Madrigalejo, 1516.
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- Ferguson, Benjamin F.,** left fund to Chicago, 19-7124
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- Ferland, l'Abbé, French-Canadian historian, 14-5105**
- Fermentation.** The process of decomposition or breaking-down of a compound organic substance brought about by the action of living organisms or by certain chemical agents. For example, in bread-making yeast breaks up the sugar into alcohol and carbon dioxide.
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- Fernando Po, Spanish West African island, producing sugar, bananas and yams. Area, 770 square miles.**
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- Ferrara.** Capital of province of Ferrara, Italy. a cathedral and university city with ancient walls and many medieval palaces. It manufactures hemp, soap, glass and silk.
- Ferrari, Gaudenzio, Italian painter**
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- Fête champêtre.** French phrase meaning "out-door festival."
- Fetish.** Any material object looked upon with awe and regarded as having magical powers to protect from harm or bring success. It may be natural, as a tree, an animal or any part of an animal; or artificial, as a carved form.
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- Fez.** One of the capitals of Morocco, 100 miles east of the port of Rabat. A picturesque walled place, it has a Moslem university.
- Fiat money.** Paper money which is issued by a government to be used as money, although it is not based on coin or bullion. Its value depends upon the soundness of the government issuing it.
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- Fiddler-crab.** A small crab called by this name because of a large oddly shaped claw which it waves about in such a way as to suggest fiddling.
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- Fiesole.** Ancient Etruscan city near Florence, Italy, inclosed by a cyclopean wall. Its cathedral dates from the 11th century, and it has remains of a Roman amphitheatre.
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- Filibuster.** A member of a company banded together, without regard for international law, to invade or revolutionize a foreign state.

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- Filibuster.** To interrupt or hinder legislation by wasting time in useless speeches, motions, objections, etc., in debate.
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- Florence**. One of the most important cities of Italy, famous for its beauty, its splendid art collections, and its great place in history. On both banks of the Arno, it still has remains of its old wall and of Roman baths and an amphitheatre; its medieval churches and palaces are among the most beautiful in Europe.
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- Florida**. Southernmost Atlantic state; area, 58,666 square miles; capital, Tallahassee. It has a lovely climate and luxuriant vegetation. In the cultivated regions cotton, sugar, tobacco, and many kinds of fruit flourish amazingly. Lumber and tobacco products are the chief manufactures. Jacksonville, the largest city, Pensacola, Tampa and Key West are the chief towns; Palm Beach and Miami are famous winter resorts. Abbreviation, Fla. Nickname, "Everglade State." State flower, orange blossom. Motto, "In God we trust." "Florida" comes from the Spanish words meaning "Feast of Flowers" (Easter Sunday). First settlement, St. Augustine, 1565.
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- Florin**. An English coin of silver worth 2 shillings, in use since 1849. The name, derived from the Latin *florin* (flower), was first given to a gold coin stamped with a lily issued at Florence in 1252. There was a gold florin issued in England by Edward III in 1343-44. The Italian city of Florence also issued a florin.
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- Fluorite**, or **fluorspar** (CaF₂). Consists of fluorine and calcium. It usually occurs in grains or crystals with a glassy lustre, and it is generally translucent, though not transparent. In color it may be white, violet, blue, purple or yellow, and is used sometimes as an ornamental stone. But its chief value is as the source of hydrofluoric acid, hydrofluosilicic acid, as a flux and as an agent in enameling.
- Flushing**. Dutch port at the mouth of the Scheldt, on Walcheren Island. On this port the Dutch plan to build new forts.
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- Flying Dutchman**. Phantom ship said to have been seen at various times by seamen, especially about the Cape of Good Hope. She appeared always under full sail, and was regarded as a warning of disaster. Captain Marryat's story The Phantom Ship is based on the tradition.
- Flying fish**. *Picture* (in color) 16-5785
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- Force Bills**. By the United States Congress, in 1833, to meet nullification threats by certain states, a bill granting the President power to execute the tariff laws by force if necessary; in 1871 the Enforcement Act, or the Ku Klux Act, was passed giving the President power to suppress violations of the XIV Amendment; in 1890 an act providing for Federal supervision of elections passed the House but failed in the Senate.
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- Foreshortening**. A representation of a figure or part of a figure according to the laws of perspective so that it diminishes in actual extent according to the angle at which it is seen, but conveys the impression of its entire length. For examples see figures in the painting on 3-822.
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- Fort Monroe**. A United States military post situated at Old Point Comfort, Virginia, and commanding the entrance to Hampton Roads. Jefferson Davis was confined here.
- Fort Moultrie**. A fort situated on Sullivan's Island at the entrance to the harbor of Charleston, South Carolina, noted for its defense against the British during the Revolutionary War.
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- Fox, George**. English itinerant preacher, founder of the Society of Friends; born, Fenny Drayton, Leicestershire, England, 1624; died, 1691.
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- Frankfort**. Capital of the state of Kentucky, is 55 miles by rail east of Louisville and is in the heart of the "Blue Grass" region. There are manufactures of lumber, flour, chairs, shoes, tobacco, hemp, glass, etc.
- Frankfort-on-Main**, Germany, 12-4170
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- Franking privilege**. The right to send mail matter free of charge.
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- Fraser, Lovat**, English painter, 8-2860
- Fraser, Simon** (1776-1862). A great Canadian fur-trader and explorer. Discovered Fraser River, 1806. A partner in the Northwest Company. He refused a knighthood offered for his services as an explorer.
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- Fraser, William Alexander**, Canadian author, 15-5372
- Fraser**. British Columbian river, named for the explorer Simon Fraser, the most famous salmon stream of Canada. Rising in the Rockies, it flows into the Pacific near New Westminster, and is navigable for about 100 miles, there being a great canning industry on its lower course; the river furnishes great facilities for transport of timber. 750 miles.
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- Frederick William I**, king of Prussia
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- Frederick William** (1620-88). "The Great Elector," who as Elector of Brandenburg (1640-88) secured the independence of Prussia from Poland.
- Picture*, portrait, 11-3969
- Free cities**. Cities or towns with government and laws of their own, forming each a state by itself. In the Middle Ages the towns of Northern Europe (Germany, etc.) in the Hanseatic League were generally free towns. Certain cities as parts of the German Empire were called imperial cities. The free cities that still hold their freedom are: Hamburg, Lübeck and Bremen. Up to 1866 Frankfort-on-Main made a fourth.
- Free-Soil party**. A political party in the United States, formed in 1848. It was opposed to the extension of slavery in such parts of the country as had not been formed into states. In 1854-56, with additions from certain other groups, it grew into the Republican party.
- Free speech**, Eliot's defense of against Charles I, 6-1976
- Free trade**. Trade without restrictions, as commerce between countries unhampered by customs-duties. In a more limited sense it is used for international trade free of all duties except such tariffs as will be enough to cover revenue and police.
- Freedmen's Bureau**. The popular name for the Bureau of Refugees, Freedmen, and Abandoned Lands, created in 1865 by the War Department of the United States and existing until 1872. Its function was to look after the welfare of the emancipated negroes in such matters as necessities of life, land provision, education, civil rights, etc.
- Freedom**, *see* Liberty
- Freedom of a city**. Privilege enjoyed by a free-man of a city; honorary freedom of a city or borough is given from time to time to persons of distinction.
- Freeman, Edward Augustus**, historian, 9-3205
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- Freeman, Mrs. Mary E. Wilkins**, American author, 13-4819
- Freemasonry**. A modern name for the principles of the Order of Freemasons. The order has an elaborate system of symbolic ritual, many grades of officers, and a number of secret signs and passwords. It is founded upon the principles of truth, charity, brotherly love and mutual assistance.
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- French.** Inhabitants of France, and a mixture of all three types of the Caucasian division of man. The central and southern provinces are mainly Celts of Alpine stock, while part of the south is inhabited by Basque Iberians of Mediterranean stock. In the north and northeast are descendants of Teutonic invaders of the Nordic stock, but most of the Teutons have been absorbed by the Alpine races.
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Fuller's earth. A clay-like substance found deposited in certain parts of the world and used for "fulling," or cleansing wool and cloth. It has the properties of absorbing grease and clarifying oil. It is employed now for filtering mineral oils and decolorizing vegetable oils.

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Funchal. Capital, cathedral city, and port of the Portuguese island of Madeira. Famous as a health resort, it is also a coaling station.

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famous for its salt-mines and petroleum de-
posits. Lemberg and Cracow are the chief
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- Galicja**. Old northwest province of Spain, con-
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and the cathedral city of Santiago.
- Galilee, Sea of**. Lake in northern Palestine,
lying 680 feet below sea-level. Sixty-four square
miles in extent, it is fed by the Jordan, and
abounds in fish; the ancient city of Tiberias
and the ruins of Capernaum and Chorazin stand on
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Ganges. Most important Indian river, rising in the Himalayas and flowing through a fertile plain and a vast delta into the Bay of Bengal. It drains 390,000 square miles, its discharge of silt discoloring the sea 50 miles from its mouth; the Jumna, Gogra, Gumti, Son and Gandak are large tributaries. The chief towns it passes are Cawnpore, Allahabad, Benares and Patna, and Calcutta stands on the Hoogli mouth. The Ganges is considered sacred by the Hindus. 1,557 miles.
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Garganey, bird

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Gargantua

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Gargle. A liquid medicine for cleansing or

stimulating the back parts of the mouth and the

throat. The liquid is churned about by muscular

movement and gentle respiration, then

ejected from the mouth. Gargling is one of the

best treatments for sore throat.

Gargoyle. A spout projecting from the roof-

gutter of a building to discharge water. Gargoyles

have been used in almost every period

of architecture, but the name is most closely

associated with the grotesque spouts of Gothic

buildings.

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Garlic. A bulbous plant resembling the onion.

It has a strong odor and a pungent flavor, and

is much used in cooking, especially in Southern

Europe and in Oriental lands

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Gary, Elbert H. (1846-). American business

man, head of the United States Steel Corporation.

Gary, Indiana, planned as model home

for steel workers, was named in his honor.

Gary, Indiana, development of, 17-6038

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Gas warfare. The use of poison gases, tear gases and others to cripple an enemy's forces. Suffocating gases were used about 431 B.C. in the war between Athens and Sparta. In the Middle Ages similar means were employed. The first gas attack in the World War was launched by the Germans at Ypres, April, 1915.

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Gascony. Old French duchy, in the extreme southwest, united in 1052 to Guienne. The Gascons are famous in literature for their thriftiness and fiery temper.

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Gates, Ellen M. H., *see* Poetry Index for poem and note

Gates, Horatio (1728-1806). Revolutionary soldier, born in England. He served in British army under Braddock but remained in America and later joined Revolutionary army; received high command, but failed as a leader.

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desired to supplant Washington, 4-1170

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Gatun locks, Panama Canal, 1-362-64

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Gauge, or gage. An instrument or apparatus for gauging or measuring size, force, capacity, etc.

Gauguin, Paul. French impressionist painter; born, Paris, 1848; died, West Indies, 1903.

Gaul, France in early times

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Gauls, ancient tribe of Europe

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Gauntlet. In medieval armor, the glove for protecting the hand. It was made entirely of metal or of roundels and plates of steel upon leather. Earlier examples were attached to the armor for the arm; later styles were separate.

Gaur, wild cattle of India, 4-1263

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Gautama, *see* Buddha

Gautier, Théophile. Noted French romantic novelist, poet and literary critic; born, Tarbes, 1811; died, Neuilly, near Paris, 1872.

story of his cat, 11-3837

Gay, John

Picture, portrait, by Kneller, 6-2003

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Gay-Lussac, Joseph Louis. French chemist; born, 1778; died, 1850; established the laws concerning union of gases.

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Gaza. Ancient city of Palestine, once a Philistine stronghold.

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Gean, name for wild cherry, 12-4383

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Geddes, Jenny. An old woman opposed to prelacy who took up her stool to throw at the Bishop's head in St. Giles's Cathedral, Edinburgh, in 1637.

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red-breasted goose (in color), 12-4370

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Geikie, Sir Archibald (1835-1924). An eminent Scottish geologist.

Geissler's tubes. Sealed vessels so constructed as to show the effects of electricity when passed through rarefied gases. The result is a display of light varying in color and intensity.

Gelatin. A substance obtained from certain animal tissues when treated with hot water or acids. It swells but does not dissolve in cold water, and dissolves in hot water. When its solution made with hot water cools, it has the form of a tremulous jelly.

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General Sherman Tree, sequoia, 7-2290-91

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Genesis. The first book of the Old Testament in the Bible. The word is derived from a Greek word meaning origin, source, beginning. The book gives the stories of creation, the flood, the scattering of races and the lives of the early Hebrew patriarchs.

Genet, animal. *Picture*, 2-496

Geneva. Historic Swiss city, stronghold of Calvin in the 16th century, and now seat of the League of Nations. Standing at the exit of the Rhone from Lake Geneva, it is a well-built place with a 12th-century cathedral, a university and fine modern buildings. Watches and jewelry are manufactured.

See also 16-6006, 6008

Geneva, Lake. Largest lake in the Alpine region, covering 225 square miles. It lies between Switzerland and France, and is traversed by the Rhone, its waters being famous for their transparency and blueness. Geneva, Vevey, Montreux, Villeneuve and Ouchy, the port of Lausanne, are the principal Swiss towns on its shores, and at the east end is the castle of Chillon. *See also* 16-6000

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Geneva Convention, 1864. International agreement to respect those who attend sick and wounded in war.

Genevieve, St. Patron saint of Paris, reputed to have saved the city from Attila by her prayers in 451.

Picture, Bishop and St. Genevieve, by Chavannes, 7-2478

Genghis Khan, *see* Jenghiz Khan

Genii. Spirits having influence over certain places, persons or things, particularly powerful demons, both good and bad, in Arabian and Mohammedan lore, who took part in human affairs and were sometimes under the control of magic. In this sense *genii* is the same as *jinn* of which the singular is *jinn*.

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Genoa, Chief port and one of the most important manufacturing cities of northern Italy, with iron-working, fruit-preserving, sugar, cloth and cotton industries. Once a powerful republic, sharing with Venice the trade of the East, Genoa still has many fine Renaissance palaces and ancient churches; its cathedral dates from 985. Among its citizens were Columbus and Mazzini.

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Gentle. Literally "one who belongs to a gens, or clan." In the Scriptures, anyone not a Jew; in later writings sometimes anyone neither a Jew nor a Christian.

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George IV, king of England

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George V (1865-). King of Great Britain and Ireland, succeeded his father King Edward VII, May 6, 1910. Married Princess Mary of Teck. Had 6 children: 5 sons, Edward Albert, Prince of Wales, Albert Edward, Duke of York, Prince Henry, Prince George and Prince John; and one daughter, Princess Mary.

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George, Henry (1839-97). American writer on economics. Chief works, Progress and Poverty, The Land Question, Protection or Free Trade.

George Washington Highway, note and pictures, 14-4894

Georgetown, capital of British Guiana, 9-3190

Georgetown, Malay Peninsula, 9-3184

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Georgia. Soviet republic in Transcaucasia; area, 25,760 square miles; it has great agricultural and mineral resources, including rich deposits of manganese, iron, lead, petroleum and copper, and contains the important towns of Tiflis, the capital, Kutais, Poti and Batum.

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Georgia. Cotton state bordering the Atlantic; area, 59,265 square miles; capital and largest city, Atlanta. Besides cotton and corn, it produces much fruit, rice, wheat, sugar and tobacco. The chief manufactures are cotton, lumber, fertilizers and cottonseed products. The mineral resources are considerable. Savannah, Macon and Augusta are the chief towns. Abbreviation, Ga. Nickname, "Cracker State." State flower, Cherokee rose. Motto, "Wisdom, Justice, Moderation." "Georgia" was named after George II of England. First settlement, Savannah, 1733.

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- Germany**. Republic of Central Europe, with an area of 182,213 square miles and a population of about 60,000,000. It consists of a federation of states, of which Prussia, Bavaria, Wurttemberg, Baden and Saxony are the chief, and is the most important manufacturing country of the European continent, having nearly 50 towns with over 100,000 people. In 1912 its annual mineral produce was valued at nearly \$3,000,000,000, the coal-fields of the Ruhr and Saar valleys, Saxony and Upper Silesia being especially important, though iron, lead, zinc, silver and salt are also mined. Rye, wheat, sugar-beet, wine and potatoes are the chief crops, and textile, engineering, chemical, paper, iron, steel and hardware the chief manufacturing industries. Among the greatest cities are: Berlin, the capital, Munich, Leipzig, Dresden, Cologne, Breslau, Frankfurt, Düsseldorf, Nuremberg, Hanover, Magdeburg, Stuttgart, Chemnitz and Mannheim. The greatest ports are Hamburg, Bremen, Königsberg, Stettin, Kiel and Lübeck. On November 9, 1918, the abdication of the German Emperor was announced and from that date Germany became a Republic.
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- Gladiators**. In old Roman times, men who fought to give the people entertainment. Sometimes they fought against other gladiators, sometimes against wild animals. These fights took place in arenas before large audiences.
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- Gladstone, William Ewart**. English statesman; born, Liverpool, 1809; died, Hawarden Castle, Flintshire, 1898; prime minister four times. The Irish Church was disestablished and two Home Rule Bills were brought before Parliament and defeated in Gladstone's terms of office.
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- Glamorgan**. County of South Wales; area, 813 square miles; capital, Cardiff. The main industry is coal-mining, the anthracite mines being the most important in Great Britain; but the tinplating, smelting and oil-refining industries are considerable. Here are the ports of Cardiff, Swansea and Barry, and the mining centres of Rhondda, Merthyr, Tydfil, Aberdare and Pontypridd; other places of note are Llandaff, Caerphilly and Neath.
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Gloria Patri. Latin for "Glory be to the Father."

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Gloucester. Capital of Gloucestershire, on the Severn. One of the most historic English cities, it has a splendid cathedral, largely Norman in style, a 12th-century church, and remains of ancient walls. There are railway shops and agricultural trades.

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Glycerine, or **glycerol** (C₃H₇(OH)₃). A sweet sirupy liquid which is colorless and odorless. It is obtained by the saponification of the natural fats and oils which are compounds of it with various acids. Used as an ointment, as a solvent and vehicle for medicines, as a preservative in food products, as an adulterant in wine, beer, etc., and largely for the manufacture of nitroglycerine.

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His tapestries became world-famous.

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Goitre. An enlargement of the thyroid gland in the anterior part of the neck, commonest in inhabitants of mountainous regions, especially, it is said, where lime prevails largely as a geo-

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Gold (Au). The most malleable and most ductile of the metals and undoubtedly the first to be used by man. It is a soft, heavy yellow metal and is found usually in quartz veins. Nuggets and grains found in stream beds were washed out of quartz veins. Silver, tellurium and platinum are often found alloyed with native gold. North America, Australia and South Africa are the big gold-producing areas of the world.

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Golden Horn. Inlet of the Bosphorus forming the harbor of Constantinople. It is crossed by Galata Bridge, connecting the Turkish district of Stamboul with the Christian district of Pera.

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Good Hope, Cape of. Southwesternmost point of Africa, 30 miles south of Cape Town. Discovered by Bartholomeu Diaz in 1487; doubled by Vasco da Gama in 1497; it has given its name to the Cape Province

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Gordon Riots, 1780. Organized by Lord George Gordon as a protest against relaxation of penalties against English Roman Catholics.

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Gorges, Sir Ferdinando (c. 1566-1647). The founder of the state of Maine and sometimes called the father of English colonization in

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- Gorizia**. City of northeast Italy, with a cathedral and an ancient castle. It has leather, paper, soap and pottery manufactures, but was much damaged during the World War.
- Gorki, Maxim**. Modern Russian writer; born, Nijni Novgorod, 1868. After an early life of extraordinary hardship he published volumes of short tales of the underworld in a strong, new vein, which made him famous. He has written a number of plays also.
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- Grand Army of the Republic**. A voluntary association organized in 1866 of men who served in the Union army or navy during the Civil War in the United States. Its objects are to maintain and strengthen fraternal feelings, perpetuate the memory of those who have fallen, and assist the widows and orphans of deceased members.
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- Grand Falls**. The highest waterfalls in the world, 2,000 feet high. On the Hamilton River, Labrador.
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- Grand Rapids**. City of Michigan, trading in lumber, fruit and agricultural produce.
- Grandfather Clause**. In some of the Southern states of the United States a clause in the constitutional provisions restrictive of the suffrage, which have been made since 1890, exempting from property and literacy restrictions men or descendants of men who voted before 1867.
- Granite**. Igneous rocks composed of quartz or feldspar and mica, amphibole or pyroxene. Granite gets its name because of its granular structure. It is an important building-stone, contains elements necessary to life, 2-525
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Granulation. The process of forming, or crystallizing, into grains, as the granulation of sugar.

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Graphite. Pure carbon, black or steel-gray in color. It is found in scales, flakes, masses or earthy lumps. It soils the fingers, makes a mark upon paper and feels greasy. It is a very soft mineral. It is used to make pencils, stone polish, foundry molds and lubricants for heavy machinery. Graphite is found in most countries of the world.
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Grattan, Henry. Irish writer and statesman, who was presented with \$250,000 by Irish people for his services to the Irish cause; born, Dublin, 1746; died, London, 1820; buried in Westminster Abbey.
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Great Bear Lake. Lake in northern Canada, occupying 14,000 square miles and discharging into the Mackenzie River through the Great Bear River.

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Great Divide. Popular term in America for the watershed of the Rocky Mountains.

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Great Eastern, steamship, 17-6403
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Great Greeks, * 2-701-09

Great Ice Barrier. Antarctic rampart.

Great Kanawha River. American river, rising in the Blue Ridge Mountains, North Carolina. Empties into the Ohio River. 450 miles.

Great Lakes. Area in square miles, with greatest length and breadth in miles, and depth in feet

| | <i>Length</i> | <i>Breadth</i> | <i>Depth</i> | <i>Area</i> |
|--------------------|---------------|----------------|--------------|-------------|
| Superior | 360 | 160 | 1,180 | 31,810 |
| Michigan | 307 | 118 | 870 | 22,400 |
| Huron | 206 | 101 | 750 | 23,010 |
| Erie | 241 | 57 | 210 | 9,940 |
| Ontario | 193 | 53 | 738 | 7,540 |

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- Great St. Bernard**. Historic Alpine pass between Switzerland and Italy, with a famous hospice near its summit; 8,103 feet high.
- Great Salt Desert**. Desert in northeast Persia.
- Great Salt Lake**. Salt-water lake in northern Utah, covering about 2,360 square miles. Its waters are so dense that the human body cannot sink in it, and the evaporation of its salt has become an important industry. On its shores is Salt Lake City.

- discovered by Bonneville, 6-1916
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- Great Slave Lake**. Lake in northern Canada, covering 10,700 square miles and drained by the Mackenzie River.
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- Greeley, Horace** (1811-72). A famous American journalist and politician; in 1872 ran unsuccessfully for president.

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- Greeley, A. W.**, arctic explorer, 13-4714
- Green, John Richard**, as a historian, 9-3205

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- Green River**. American river, rising in Lincoln County, Kentucky. Flows into the Ohio River. 350 miles.

- Green** (color) in nature, reason for, 2-460
- Green turtle**, 14-5235
- Greenaway, Kate**, 19-6994

- Pictures*, illustrations of nursery rhymes, 19-6994

- Greenback**. Popular name given to the legal-tender notes first issued by the United States Government during the Civil War; so called because the back of the note has always been printed in green ink.

- Greenback party**. A party known as the Independent party opposed to the retirement or the reduction in amount of the greenbacks. It held its first convention in 1874. In 1877 it was absorbed into the National party, which adopted its currency policy and was known thereafter as the Greenback-Labor party.

- Greene, Albert Gorton**, *see* Poetry Index for poem and note

- Greene, Edmund Fiske**, *see* Fiske, John
- Greene, Nathanael** (1742-86). American Revolutionary general, born in Rhode Island. He served with great credit throughout the Revolution.

- at Cambridge, 4-1164
- commanded in the South, 4-1172
- widow befriended Eli Whitney, 6-1912

- Picture*, portrait, 4-1165
- Greene, Robert**, English dramatist, 2-721; 3-1124
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- Greenland**. Huge island of North America, lying mainly within the Arctic Circle; it is remarkable for the immense ice-cap which covers its interior, the only habitable areas being narrow strips along the coast. Its area is 827,000 square miles; the population is mainly Eskimo; the polar bear, reindeer and musk-ox are the chief land animals. Whale and seal oil, furs and eiderdown are exported, and the fisheries are important. Greenland was colonized by the Norsemen in the 10th century, but the founder of the present Danish colony was the missionary Hans Egede, who settled in Godthaab in 1702. Other settlements are: Godhavn, the capital, Sydproven, Christianshaab, Julianshaab and Upernavik.

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- Gregorian Calendar**. The calendar now in general use, introduced by Pope Gregory XIII in 1582, replacing the Julian calendar, which counted the year as 365 $\frac{1}{4}$ days, though it is really a little less. By 1582 the vernal equinox was coming on March 11 instead of on March 21. Ten days were dropped, and it was provided that in the future the even centuries (1600, 1700, etc.) should not be leap years unless they could be exactly divided by 400. This calendar was not adopted in England until 1751, when it was necessary to omit eleven days, calling the day after September 2, 1752, September 14.
- Gregory I, the Great**. Pope 590-604; born about 540; died about 604. He was a Roman of noble family who gave up public office and devoted his life to the church, being elected pope in 590. He founded six Benedictine monasteries, sent St. Augustine to Britain, and had great influence on church music, arranging the Gregorian chants.
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- Gregory VII, Pope** (Hildebrand)
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- Gregory, Charles Noble**, *see* Poetry Index for poem and note
- Grenada**. Southernmost of the British Windward Islands; area, 133 square miles; capital, St. George's. Beautiful and fertile, it produces cacao, coffee, sugar, nutmegs, mace and cotton products, 9-3190
- Grenade**. A shell filled with powder or other explosive, designed to be thrown by hand among the enemy and to explode on impact. An ancient missile revived, improved upon, and much used during the World War.
- Grenfell, Sir Wilfred Thomason**, missionary and physician, 7-2495-2500
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- Grenoble**. Old capital of Dauphiny, France, on the Isère. It has a university and a 15th-century cathedral, and manufactures kid gloves.
- Grenville, Sir Richard**, English mariner
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- Grenville Canal**, Canada, account and picture, 6-1963
- Gresham, Sir Thomas**. English merchant, founder of the Royal Exchange; born, London, about 1519; died there, 1579.
- Gresham's Law**. Derives its name from Sir Thomas Gresham, founder of the Royal Exchange of London. He said: "When two sorts of coin are current in the same nation, of like value by denomination but not intrinsically, that which has the least value will be current and the other as much as possible will be hoarded." That is, that bad money drives out good money—true only when the sum of the two is greater than the demand.
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- Grimm, Jakob Ludwig Karl**, German writer, 17-6413
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- Groningen**. Agricultural centre and university city in Dutch Friesland.
- Gros, Antoine Jean**, French painter, 6-2081
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- Grotius, Hugo**. Dutch jurist, statesman and poet, founder of international law; born, Delft, 1583; died, Rostock, Germany, 1645.
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- Ground-hog Day**. February 2, when the little woodchuck is commonly supposed to emerge from his winter sleep. If the day is cloudy, he stays out, anticipating an early spring; if it is sunny, he returns to his hole.
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- Grünewald, Mathias**, German painter, **4-1344**
- Guacharos**, birds, account of, **9-3374**
- Guadalajara**, Second city of Mexico, with a magnificent cathedral. It has a large trade and many manufactures.
- Guadalquivir**, River of Andalusia, Spain, rising in the Sierra del Pozo and passing Cordova and Seville on its way to the Atlantic. It is navigable for ocean steamers to Seville. 350 miles.
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- Gadeloupe**, Group of French West Indian islands including Grande-Terre and Basse-Terre, the last containing the Soufrière volcano (4,869 feet). Coffee, cacao, sugar, vanilla, sweet potatoes and tobacco are produced, the chief ports being Basse-Terre, the capital, and Point-à-Pitre.
- Guadiana**, River of southern Spain and Portugal, draining 32,000 square miles. Rising in La Mancha, it flows past Merida and Badajoz into the Atlantic. 520 miles.
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- Guarani Indians**, South America, Jesuit mission to, **19-6862**
- Guarantee**. Something given by way of security; *guaranty*. An undertaking to provide for the payment of some debt in case of the failure of another to pay.
- Guard the block**, game, **10-3769**
- Guardian**. One who has the care and control of another, as of a minor or a person incapable of managing his own affairs.
- Guarneri, Antonio Giuseppe**, violin-maker, **18-6700**
- Guatemala**, Northernmost Central American republic; area, 42,353 square miles; capital, Guatemala. It exports coffee, bananas, timber, sugar and hides.
- Guava**, fruit
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- Guayaquil**, Port of Quito, capital of Ecuador, exporting tobacco, hides, bark, cotton, rubber, quinine and cacao.
- Guelder-rose**, bush, **11-4020; 17-6131**
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- Guernsey**, Second largest of the Channel Islands; area, 25 square miles; capital, St. Peter Port. Market gardening, cattle-raising and fishing are the chief industries.
- Guernsey**, breed of cattle, **4-1262**
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- Guido Reni**, *see* Reni
- Guienne**. Largest of the old provinces of France, containing the great port of Bordeaux. The chief British conquest in the Hundred Years' War, it was the last surrendered.
- Guild**. An association of members belonging to the same class or engaged in kindred pursuits or interests. Guilds of merchants were common in the Middle Ages.
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- Guilford Court House**. Battle of the American Revolution, fought March 15, 1781, near present city of Greensboro, N.C., between Cornwallis and Greene, resulting in American defeat.
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- Guinea**. Name applied to practically all tropical West Africa. French Guinea, north of Sierra Leone, has an area of 92,640 square miles, and produces tobacco, gum, cotton, wax, ivory and nuts; Portuguese Guinea lies north of French Guinea, while Spanish Guinea is a small territory on the Bight of Biafra.
- Guinea, Gulf of**. Immense gulf in the west coast of Africa, containing the Bight of Biafra and the Bight of Benin.
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- Guizot, François, Pierre Guillaume**. French statesman and historian; wrote histories of Revolution in England, civilization in Europe, and civilization in France; born, Nîmes, 1787; died, Val Richer, Normandy, 1874.
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- Gun cotton**. Obtained by soaking cotton in a mixture of nitric and sulphuric acids. This produces a series of cellulose nitrates which are inflammable and explosive. Explodes by ignition only in large quantities or when confined, but may be exploded by detonation when free.
- Gundulf**, built Tower of London, **12-4354**
- Gunpowder**. A black or brown explosive substance consisting of a mixture of potassium nitrate, sulphur and charcoal, used in gunnery and in blasting. Believed to have been invented by the Chinese, its use was known in Europe in the 14th century. It is manufactured in grains of different sizes for different purposes and is being superseded for many firearms by smokeless powders.
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- Gustavus II, Adolphus**. Swedish soldier, king and national hero; born, Stockholm, 1594; killed, Lützen, Saxony, 1632; reigned from 1611 and saved the Protestant cause in the Thirty Years' War.
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- Gye, Dr.**, and cancer germ, 13-4671
Gymnasium, a building or other place for the teaching and practice of athletic exercises. In ancient Greece it was a public place for physical training, especially for competitors in the public games. It held an important place in the community. At first an open spot among trees and beside a stream, it later developed into an elaborate establishment with baths, porticos, etc. Sometimes mental training was added to the physical. Three famous gymnasia in Athens were the Academy, Lyceum and Cynosarges.
Picture, in ancient Sparta, 3-1075

- Gymnosperms**, plants with naked seeds, 12-4249

- Gymnuras**, animal, description, 1-320
Gypsum. A non-metallic light-colored mineral found in beds or granular masses. It splits easily in one direction and can be cut with a knife. When heated at high temperature gypsum falls to a powder known as plaster of Paris. It is also ground to powder and used as a fertilizer. Pure white gypsum is called alabaster. Gypsum is found all across the United States and Canada.
 in Mammoth Cave, 4-1300

- Gypsy moth**, note and picture, 17-6069
Gyro-compass, 12-4422
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- Gyroscope**. A scientific model or instrument consisting of a heavy-rimmed flywheel capable of rotating at high speed on a pair of bearings contained in a ring, or gimbals. Designed to illustrate experimentally the dynamics of a rotating body such as the spinning-top, hoop and bicycle, and also the procession of the equinox and the rotation of the earth. It has been applied in stabilizing rolling ships at sea, in directing torpedoes, in the gyro-compass, which has been thus made independent of magnetism, in various schemes for monorail transportation and in airplane-stabilizers which operate against tipping. Scientists hold out great hopes for its use in the future.

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Haarlem. Centre of the Dutch tulip trade, with one of the largest and finest churches in Holland.
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- Habitat**, meaning of term, 15-5365
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- Hacienda**, in the Spanish use, a landed estate. In Spanish America, an establishment in the country where agriculture, mining, manufacturing or stock-raising is carried on; more specifically, a farm that is under cultivation and has a good country house.

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- Haiz**, Persian poet, 15-5463
Hafnium, element recently discovered, 12-4291
Haggard, Rider, author, 11-3898

- Hague, The**. Administrative capital of the Netherlands, the parliament sitting in the old castle of the counts of Holland. Here is a magnificent picture gallery. The Hague is the world-centre of international law.
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- Haig, Douglas, Earl**. Scottish field-marshal; born, 1861; commanded the British army, 1915-19. During this period were fought the battles of the Somme, of Arras, the Hindenburg line, Messines, Ypres and Cambrai, and finally the great disasters and triumph of 1918. For his services he was raised to the peerage as Earl Haig of Bemerseyde and given a grant of \$500,000.

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- Hail, Columbia!** song, origin, 18-6512-13
Hainault. Once an independent countship, but now a province of Belgium; area, 1,437 square miles. It contains the important coal-mining district around Mons and Charleroi.

- Haines, Frederick S.**, Canadian painter, 10-3704
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 Why does it not hurt when we cut our hair? 8-2873
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- Hair compasses**. Compasses in which a spring attached to one of the legs tends to press the other leg out. By means of a fine screw the

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- Halicarnassus**, Asia Minor, tomb of Mausolus, *see* Mausolus
- Halifax**. Canadian port, capital of Nova Scotia. The terminus of the C.P.R. and the C.N.R., it has one of the finest harbors in the world, with accommodation for the largest ships on the transatlantic service, and it is open in the winter months. Shipbuilding and manufacturing industries are carried on, and there are exports of fish and lumber. It is also a naval base for the Canadian navy.
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- Hallucination**. The perception of external things which have no reality, such as the sight of a pursuer where no figure exists. Generally an experience of a sick mind. Mostly visual or auditory; occasionally relating to taste, smell or touch.
- Hals, Frans**, Dutch painter
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- Hamilton**. Iron- and steel-manufacturing centre in Ontario, Canada, trading also in textiles and tobacco. Centre of Niagara fruit district. Founded in 1778 by Loyalists, it has Anglican and Roman Catholic cathedrals.
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- Hamites**. People of the Mediterranean type of the white race who have inhabited all Africa north of the Sudan since prehistoric times. They are divided into Eastern and Western branches—the Eastern including the Egyptians, Nubians, Abyssinians and Gallas; and the Western including the Berbers, Tibus and Fulahs.
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- Hammerfest**. Northernmost town in the world, on an island of Norwegian Finmark. Fishing and sealing are important.
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- Hampshire**. County of southern England; area, 1,623 square miles; capital, Winchester. Here are the Isle of Wight and New Forest, and the ports of Southampton and Portsmouth.
- Hampton Court**, English palace, and Henry VIII, 5-1817
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- Hampton Normal and Agricultural Institute**, opening of, 19-7240
- Hampton Roads**. The lower part of the estuary of the James River, Virginia; an important military point, fortified by Fort Wool and Fortress Monroe. It is important commercially also. During the Civil War the site of two engagements.
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- Harun-al-Rashid**, Most magnificent Abbasside ruler of Bagdad, famous as the caliph of the Arabian Nights; reigned 786-809.
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Hastings, Seaside resort and ancient Cinque Port in East Sussex, 62 miles from London. Here is a ruined castle built soon after 1066, and near by, at Senlac, was fought the battle of Hastings. The borough includes St. Leonards.

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Hausas. Compact race of Sudanese Negroes who live in central and western Sudan. They are a peaceful and industrious race of some 20,000,000 people, whose melodious language is used in trade from Lake Chad to the Niger.

Havana. Capital of Cuba, with a famous trade in cigars and tobacco. Founded in 1519, it is the largest city in the West Indies, and has a cathedral, many fine buildings, and a spacious and sheltered harbor. Sugar is a great export.

Picture, approach to Havana, 19-7096

Havelock, Sir Henry. English general; born, Bishop-Wearmouth, Durham, 1795; died, Lucknow, 1857; relieved Lucknow in Indian Mutiny.

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Havre, Le. Important French port at the mouth of the Seine. It has shipbuilding yards, flour mills, and sugar and gasoline refineries, and exports wine, textiles, paper and agricultural produce.

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Hay, Col. John. American statesman, author and poet; ambassador to Great Britain, 1897-98; Secretary of State, 1898-1905. Born, Salem, Ind., 1833; died, Newbury, N.Y., 1905. Advocated "open door" policy of trade with China. One of Lincoln's personal secretaries and co-author of a famous "Life" of Lincoln.

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Hay Fever. An irritation of the mucous membrane of the eyes, nose and respiratory tract, accompanied sometimes by fever and asthma. Generally recurs annually about the same time of the year and lasts till first frost. Supposedly caused by inhaled pollen of certain plants. Relieved by sea and mountain air, and sometimes by serum treatment.

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- Hay-Pauncefote Treaty.** Negotiated in 1901 by John Hay, Secretary of State for the United States, and Lord Pauncefote, British ambassador at Washington. Defined the policy of the United States in the construction of the Panama Canal, and specifically abrogated the Clayton-Bulwer Treaty, which had formerly regulated the matter.
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- Health, Department of.** An organization, central, state or provincial, or municipal, which cares for the problems of public health. The United States Public Health Service and the Canadian Dominion Health Department handle the problems affecting the nation generally, such as quarantine service, food-and-drug laboratories, opium and narcotic drugs. Local departments look out for pure water and milk, inspection of schools and control of communicable diseases.
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- Helena**. Capital of Montana, situated at an elevation of 4,200 feet, overlooking the fertile agricultural district of Prickly Pear Valley. The Last Chance Gulch, which runs through the city, has yielded valuable gold deposits.
- Heliades**, daughters of the Sun, 9-3233
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- Heligoland**. German North Sea island, about 45 miles from the mouth of the Elbe. British from 1807 to 1890, it was then ceded to Germany, who used it as a fortress up to 1919, when it was dismantled. Though rocky, it has suffered severely from erosion, and is now only three miles in circumference.
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- Helsinki**, or **Helsingfors**. Capital and chief port of Finland, on the Gulf of Finland. One of the pleasantest cities in Europe, it has a university, a fine harbor, and a great export trade.
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- Hematite** (Fe₂O₃). One of the commonest of the ores of iron, varying in color from red to black. Sometimes it is found in rounded shape and sometimes in solid earthy-looking masses. It is known in all parts of North America. Also called specular iron.
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- Herkimer, Nicholas** (c. 1715-77). American soldier of German descent, probably born in the New York county which now bears his name; fought in the French and Indian War; was mortally wounded at the bloody battle of Oriskany, August 5, 1777.
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- Herkomer, Sir Hubert von**. English landscape and portrait painter; born, Waal, Bavaria, 1849; died, Bushey, Hertfordshire, 1914.
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- Hermitage**, home of Andrew Jackson
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- Hermon, Mt.** Southernmost peak of Lebanon in Syria, 9,166 feet.
- Hero and Leander**. A priestess of Aphrodite and a youth of Abydos, who met secretly in the former's tower, on the Hellespont, to which Leander swam nightly. He was drowned one stormy night, and Hero cast herself into the sea to be united to her lover in death.
- Hero of Alexandria**. Greek scientist and mathematician; lived in Alexandria about 100 B.C.; he is credited with the invention of a steam engine
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- High priest**. The chief of the Jewish priesthood. Office seems to have originated during the Captivity, when the chief priest in Jerusalem became the official representative of the nation. His duties lay in the administration of the sanctuary and the sacred service.
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- Hilda, St.** Princess of Deira who was made abbess of a monastery at Hartlepool by St. Aidan, and afterward founded her famous abbey at Whitby. She died in 680, after a life of great wisdom and piety, during which she was consulted by kings and rulers.
- Hildebrand**, *see* Gregory VII
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- Hobart**. Capital and port of Tasmania, with a fine harbor. It has flour-mills, tanneries, saw-mills and foundries, and exports apples, gold, tin and copper.
- Hobbema, Meyndert**, Dutch artist, 5-1592
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- Hohenlinden, Battle of**. Great victory of the French under Moreau in 1800 over the Austrians.
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- Hohenzollerns**. Family name of the royal house of Prussia. In 1871 the Hohenzollern William I became German Emperor. Frederick III followed in 1888, and William II in the same year. With the defeat of Germany in the World War, the Hohenzollerns were deposed, and the ex-Kaiser now resides in Doorn, Holland.
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- Holland**, Maritime kingdom of western Europe; area, 12,587 square miles; capital, The Hague. Flat and low, it is intersected by a network of waterways, including the mouths of the Rhine, Maas and Scheldt, and there are about 2,000 miles of canals. Agriculture, including dairy farming, cattle-raising, and the cultivation of bulbs, is very important, and there are many and varied manufactures. The ports of Amsterdam and Rotterdam are easily the largest cities; others are: Utrecht, Haarlem, Leyden, Groningen, Arnhem, Dort, Deventer, Nijmegen, Delft and Flushing. Nearly all the people are Protestants. The Netherlands have always had a powerful mercantile marine, and their colonies have an area of 788,000 square miles.
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- Holston River**. American river, having its source at the junction of the North and South Forks rivers, Tennessee. Flows into the Tennessee River. 350 miles.
- Holy Alliance** (1511-72). Between the Pope, Spain, Venice and Switzerland; also an alliance in 1815 between the Tsar of Russia, Emperor of Austria, and King of Prussia. Its object to perpetuate the existing royal houses by a joint resistance to change.
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- Holy Roman Empire**
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- Holyrood**. Famous abbey ruins and Scottish royal palace near Edinburgh. The abbey, founded in 1128 by David I, was reduced to ruins in 1768; the palace, first built 1498-1503, was finally rebuilt by Charles II in 1671-79.
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- Home no more Home to Me, by R. L. Stevenson, **9-3110**

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- Honduras**. Most undeveloped of the Central American republics; area, 44,275 square miles; capital, Tegucigalpa. Cattle, fruit, timber, india-rubber, sarsaparilla and indigo are exported.
- Honduras, British**. British Central American colony; area, 8,598 square miles; capital, Balize. Cedar, logwood, mahogany, bananas, sponges and tortoiseshell are exported.
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- Hong-Kong**. British Chinese colony, comprising Hong-Kong island and the Kowloon peninsula; area, 391 square miles; capital, Victoria. Hong-Kong has a splendid port, ranking fifth in the world in order of tonnage entered and cleared. It became British in 1842.
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- Honi soit qui mal y pense**. French for "Shame be to him who thinks ill of it"—the motto of the Order of the Garter. An exclamation popularly believed to have been uttered by Edward III of England when he tied about his leg a garter which the Countess of Salisbury had dropped while dancing.
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- Horn.** The connective tissue of the epidermis hardened and thickened till it forms a tough fibrous material. Sometimes borne on the heads of animals, as in a stag; sometimes forms most of outer covering, as in armadillos or turtles; sometimes arms the feet or toes, as in birds, reptiles and mammals. Used in the manufacture of many useful and ornamental articles: handles for umbrellas, knives, forks, combs, etc.
- Horn, Cape.** Southernmost point of South America, on an island off Tierra del Fuego, in Chile. A bare rock 1,400 feet high, and notorious for its storms, it was discovered in 1616 by the Dutch navigator Schouten, who named it after Horn in Holland.
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- Hornblende.** A mineral, the black, dark green or brown variety of aluminous amphibole. It contains iron and occurs as crystals and in columnar, fibrous and granular form.
- Horned pout,** *see* Bullheads
- Hornel, E. A.,** artist
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- Hospitallers.** Order of monastic knights (founded, 1050); same as Knights of St. John of Jerusalem, Knights of Malta, and Knights of Rhodes. The badge of the order is the well known Maltese cross.
- Hostage.** A person given as a pledge or security for the performance of the conditions of a treaty or agreement.
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- Hottentots**. A nickname given by the first colonists to the primitive race that originally ranged all over South Africa, but to-day is confined mainly to Great and Little Namaqualand. They are gradually being merged into the Bantu and other races.
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- Houston**. Railway and commercial centre in Texas, trading in cotton, rice, sugar and lumber.
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- Hudson Bay**. Inland sea in northeast Canada, covering 400,000 square miles. It is connected with the Arctic Ocean by Fury and Hecla Strait and Fox Channel, and with the Atlantic by Hudson Strait, but is open for navigation for only three months in the year. Henry Hudson explored it in 1610.
- Hudson River**, also called **North River**. River of New York State. It rises in the Adirondack Mountains and is 300 miles long, having, with the Mohawk, a drainage area of 13,370 square miles. Troy, Albany and New York stand on its banks, and it is tidal and navigable up to Troy. Course through beautiful scenery. On its banks stands historic West Point. Above New York are the fine Palisades.
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- Hudson River tunnels**. There are four double tunnels under the Hudson River: Pennsylvania Railroad Station, New York, to Weehawken, N. J., completed in 1910; Hudson and Manhattan Railroad System, north tunnels from Jersey City to Morton St., New York, finished in 1908; south tunnels from Jersey City to Cortland Church and Fulton Sts., New York, completed 1909; Holland tunnel, the New York-New Jersey Vehicular Tunnel, begun in 1920 and by 1926 tunnel structure completed from Broome St., New York, to Provost St., Jersey City.
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- Hundred Days**. March 29 to June 22, 1815, Napoleon's short reign from the time he quitted Elba to his abdication after defeat at Waterloo.
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- Hungary**. Central European country occupying the greater part of the Great Plain of the Danube; area, 36,000 square miles; capital, Budapest. Though greatly reduced in size since 1918, it still retains some of the most fertile agricultural regions in Europe, and grain of the highest quality is produced. Agriculture and stock-raising are practically the staple industries. The people are mostly Magyars, and nearly all Roman Catholics; Szeged and Debreczen are the largest towns.
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- Hunyadi, John**. Hungarian soldier and ruler; born, Hunyad, Transylvania, 1387; died, Semlin, 1456.
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- Hurdle games** for little children, 5-1891
- Huron, Lake**. One of the five Great Lakes, lying between Ontario and Michigan. 23,200 square miles in extent, it is connected with Lake Erie by the St. Clair and Detroit rivers; the Sault Ste. Marie canals, which avoid a series of rapids, provide a navigable waterway to Lake Superior.
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- Hurricane**, from a Caribbean word, the name for a very violent wind-storm in the West Indies. It is now used to denote such a wind, sometimes accompanied by thunder, lightning and rain, in other parts of the world, chiefly in tropical regions. In the China Sea and the East Indies these storms are called typhoons.
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- Huss, John**. Bohemian religious reformer; born, Husinetz, near Budweis, 1369; burned at Constance, Baden, 1415.
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Hybrid. The offspring of the union of a male of one race, variety, species or genus with the female of another. By many plant- and animal-breeders the term hybrid is limited to the cross between different species, crossbreed being used for a cross between races or varieties of the same species. A mule is the offspring of a donkey and a mare.

Hyde, Edward, first earl of Clarendon. English statesman and historian; born, Dinton, Wiltshire, 1608; died, Rouen, 1674.

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Hyderabad. Fourth largest Indian city, capital of the Nizam's dominions, which form the largest and most populous of the internal states.

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Lord, It Belongs not to My Care, by Richard Baxter, 16-5867

Lord of All Being, by O. W. Holmes, 4-1514

Mine Eyes Have Seen the Glory, by Julia Ward Howe, 17-6251

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O God, Our Help in Ages Past, by Isaac Watts, 5-1781

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Thy Way, Not Mine, O Lord, by Horatius Bonar, 13-4599

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Hypodermic Injection. The introduction of medicines beneath the skin with a hypodermic syringe attached to the slender hollow needle. Sometimes preferable to giving by the mouth, especially when a rapid result is desired. Narcotics are most frequently administered thus. Hypodermic means "beneath the skin."

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Iberians. The people of Mediterranean type who are believed to be some of the first immigrants to South Europe from North Africa. It is supposed they settled at the mouth of the Iberus (Ebro) River in eastern Spain. Their descendants are the Basques of the Pyrenees. The Picts of Scotland are also held to be Iberian in origin. *See also* 14-5042

Iberville, Pierre le Moyne d' (1661-1706). A great naval officer of New France. In 1698 he discovered the mouth of the Mississippi and founded the colony of Louisiana.

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- Ich dien**. German for "I serve"; the motto of the Prince of Wales, which, surmounted by three ostrich feathers, forms his official crest.

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Idaho. Northwestern state; area, 83,888 square miles; capital and largest city, Boise City.

Mining, lumbering and stock-raising are carried out on a large scale. Lead, zinc, gold, silver, copper and other metals are mined. Nickname, "Gem State." State flower, syringa. Motto, "Esto perpetua" (May it last forever). "Idaho" comes from the Indian words meaning "Light on the Mountains." First settlement, Pioneer City, 1862.

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Ilium. Greek name for Troy. **6-1983**

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Ilimani. A volcano in the Bolivian Andes southeast of La Paz. It is surmounted by four peaks, of which one, Conder Blanco, is over 20,800 feet high.

Illinois. Known as the Prairie State, a North Central state. It ranks first in the production of corn and cattle, pig- and horse-rearing, while coal is extensively mined. Chicago, the largest city, has an immense meat-packing trade, and manufactures of every sort are carried on. Other towns are Springfield, the capital, Quincy and Peoria. Area, 56,665 square miles. Abbreviation, Ill. Nickname, the "Prairie State." State flower, the wood violet. Motto, "State sovereignty—national union." "Illinois" comes from an Indian word, meaning "the River of Men." First settlement thought to have been at Kaskaskia, 1695.

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Illinois River. American river, formed by junction of Kankakee and Des Plaines rivers. Flows into the Mississippi. 435 miles.

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Immunity. In medicine, the resistance to a given disease. This may arise from the presence of substances in the blood unfavorable to the bacteria, or from the absence of nourishment required by the bacteria. It can be promoted by inoculation.

Impeachment. The calling to account for some high offense. In England the House of Commons impeaches and the House of Lords determines. In the United States for federal crimes

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- Incandescent lamps**, *see* Electric lamps
- Incas.** The reigning order in ancient Peru from the 13th to the 16th century. The rule of the Incas was absolute but very mild; the sovereign was the head not only of the state and the army but of the priesthood. The word Inca is often used for the whole Quichua race, which is Indian.
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- Inchcape Rock**
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- Inclined plane.** In engineering an inclined track on which trains or boats are raised or lowered from one track to another. In mechanics it is a plane that makes an oblique angle with the line of the horizon.
- Incognito.** Italian for "unknown"; used in English for privately or under an assumed name. Often written incog.
- Income**
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- Incubator.** A device for the artificial hatching of eggs, including an egg-chamber uniformly heated, a self-regulating source of heat, and provision for ventilation of the egg-chamber. There are many different types.
- Independence Bell**, *see* Liberty Bell
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- Index Expurgatorius.** Latin for "List of forbidden books"; a list of books forbidden to Roman Catholics first issued by Pope Paul IV in 1557. The list is prepared by the Congregation of the Index, a body of cardinals and their assistants.
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- Indian corn**, *see* Corn
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- Indian Ocean.** One of the five great oceans. It lies between Asia, Africa and Australia, and contains Madagascar, Zanzibar, Mauritius, Reunion, Ceylon, Socotra, the Seychelles, the Maldives, and the Cocos islands. Occupying 27,500,000 square miles and draining 5,000,000, it has a maximum depth of 20,340 feet, and an average depth of 12,000 feet.
- Indian pink**, *see* Arethusa, orchid
- Indian pipe**, plant, 18-6572
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- Indian poke**, plant, 18-6570, 6572
- Indian summer.** A period of mild weather occurring in October and November with clear sky and hazy atmosphere. The origin of the term is American, but the reason for giving it this name is unknown.
- Indian Territory**, formation of, 19-7238
- Indian turnip**, *see* Jack-in-the-pulpit
- Indiana.** A state north of the Ohio River; area, 36,345 square miles; capital and largest city, Indianapolis. Agriculture, mining and manufacturing are all important. Abbreviation, Ind. Nickname "Hoosier State." State flower, tulip-tree. Indiana was named after the Indians. First settlement, Vincennes, about 1705.
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- Indianapolis.** Capital of Indiana, a street railway centre, with extensive manufactures of milling machinery, drugs, furniture, woodens and starch. Large oil and coal fields are in its vicinity.
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Indictment. In law, a written statement charging one or more persons with an offense, presented on oath by a grand jury.
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Inheritance tax. A charge on the succession of property from a deceased person to his heirs. in Canada and the United States, 13-4555-56
Initiative and referendum. Initiative is a political device originating in Switzerland, and since 1902 gaining foothold in the United States, which aims to secure for the voters more direct participation in legislation. In some states a measure supported by the petition of a certain proportion of voters must be acted upon by the legislature; in others, the measure must be placed upon the official ballot to be voted upon by the people themselves. The *referendum* has been long used in the United States. Legislatures have submitted many important bills to the vote of the people, and in some states any act of the legislature must be so submitted on petition of a given proportion of the voters.
Injunction. A writ whereby a person is required to do, or refrain from doing, certain acts. The first kind is the mandatory writ, the second the preventive.
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Why does blotting-paper absorb ink? 10-3578
Why does ink stain while water does not? 6-2252
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Inkerman. A ruined town in the Crimea, Russia, near Sebastopol. Here on Nov. 5, 1854, the English and French defeated the Russians, who had made an unexpected attack on the English camp. The battle was severe and losses on both sides were great.
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Inoculation. The introducing of bacteria into an individual in order to induce a mild form of the disease, which, by setting up the right blood condition, will prevent future attacks. Formerly limited to smallpox, but now extended to many diseases. During the World War soldiers were inoculated against typhoid fever and cholera.
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Internal revenue. In the broadest sense, the
 revenue derived by a government from taxes
 other than those on imports. In a narrower
 sense, items of revenue from stamps, legacies,
 spirits, tobacco, etc.
International law. The body of rules which
 civilized nations regard in their dealings with
 each other. They are based mainly in the prac-
 tice of Great Britain and the United States on
 the customs, treaties, statutes and judicial de-
 cisions of civilized nations.
International League, in baseball, 17-6141
Interstate Bridge over Columbia River, note
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Interstate Commerce Act. An act passed by
 Congress in 1887 which attempted to regulate
 commerce between the states when carried on
 wholly or partly by rail. It made all public
 carriers liable to regulation, declared that all
 charges must be reasonable, forbade special
 rates, and established the Interstate Commerce
 Commission to enforce the provisions of the
 act.
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Inventory. A detailed list of articles contained
 in a private house, as furniture, books, and so
 on; also of goods in shops or warehouses. The
 word comes from the Latin *inventire*, to find out.
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Ionian Islands. Group of Greek islands, of
 which Corfu, Zante, Cephalonia and Leucadia
 are the chief, in the Ionian Sea.
Ionian Sea. Part of the Mediterranean lying
 between Italy and Greece.
Ionians, ancient Greek people
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Ionic Order, in architecture, 15-5342-44
Iowa. Prairie state; area, 56,147 square miles;
 capital and largest city, Des Moines. Agricul-
 ture, live stock and coal-mining are the chief
 industries. Food products are the chief manu-
 factures. Nickname, "Hawkeye State." State
 flower, wild rose. Motto, "Our liberties we
 prize and our rights we maintain." "Iowa"
 comes from the name of a Sioux tribe and
 means "Sleepy ones." First settlement, Du-
 buque, about 1833.
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Ireland. Island west of Great Britain; area,
 32,600 square miles; capitals, Dublin and Bel-
 fast. Consisting of the provinces of Ulster,
 Leinster, Munster and Connaught, it is divided
 politically into Northern Ireland and the Irish
 Free State; Northern Ireland forms part of the
 United Kingdom, while the Irish Free State is
 a self-governing dominion of the British Em-
 pire. The people are nearly all Celts, and
 mainly Roman Catholics; but in the six counties
 of Ulster which make up Northern Ireland Pro-
 testants predominate. The centre of Ireland is
 generally flat, and contains the Bog of Allen
 and many lakes; but the coast is fringed with
 mountains, the highest of which are MacGilli-
 cuddy's Reeks, in Kerry. The Shannon (220
 miles) is the longest river in the British Isles,
 and Lough Neagh (150 square miles) the largest
 lake. Agriculture, dairying and stock-raising
 are the staple industries, but Northern Ireland
 has also linen, woolen and shipbuilding trades
 Cork, Londonderry and Limerick are ports.
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Irkutsk. Largest East Siberian city, trading in
 tea and furs. It has a fine cathedral.
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Iron Gates. Narrow gorge where the Danube
 cuts its way between the Balkan Mountains and
 the Transylvanian Alps, on the border of Serbia
 and Rumania. Here a series of rapids stretch-
 ing for two miles formerly prevented naviga-
 tion, but between 1890 and 1900 a passage was
 made for river steamers by blasting.
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Iroquoians. One of the most important linguis-
 tic stocks of North American Indians. They
 have been called the Romans of the New World
 on account of their proud bearing, warlike spirit
 and sound political organization. Some of the
 Iroquoian stock tribes became the historical
 Six Nations, comprising Mohawks, Oneidas, Cay-
 ugas, Senecas, Onondagos and Tuscaroras. Other
 important tribes were the Wyandots, Nottoways,
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Iroquois Falls, Ontario
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Irradiation of light, **6-2122**
Irrawaddy. One of the great rivers of Asia,
 chiefly in Burma. It forms the most important
 Burmese waterway, with an immense rice trade,
 and passes Bhamo, Mandalay, Prome and Bas-
 sein before falling into the Bay of Bengal below
 Rangoon. 1,500 miles.
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Isabella, surnamed the Catholic. Castilian
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 married Ferdinand of Aragon, **14-5044**
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Ischia. Beautiful Italian island at the entrance to the Bay of Naples.

Isfahan, or Ispahan. Persian city famous as a caravan centre. It trades in tobacco, fruit and cotton, and makes pottery and carpets.

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Isinglass. A pure form of gelatin, whitish in color and semi-transparent; prepared chiefly from the swimming bladders of sturgeons from the rivers of western Russia. Elsewhere, as in Canada, Brazil and the West Indies, it is made from cod, hake and other fish. Used in making jellies, cement, court plasters, etc.

Isis, a goddess of ancient Egypt

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Isis River, Oxford. *Picture*, 7-2540

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Islands. Areas of the 15 largest islands:

| | <i>square miles</i> |
|-----------------------|---------------------|
| Australia | 2,974,581 |
| Greenland | 827,000 |
| New Guinea | 313,000 |
| Borneo | 286,161 |
| Baffin Land | 236,000 |
| Madagascar | 224,721 |
| Sumatra | 161,612 |
| Great Britain | 89,041 |
| Honshiu (Japan) | 87,426 |
| Celebes | 72,679 |
| South Island (N.Z.) . | 58,120 |
| Java | 50,745 |
| Cuba | 44,164 |
| North Island (N.Z.) . | 44,130 |

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Isobars. Lines passing through places where the atmospheric pressure, reduced to sea-level, is the same.

Isodorus of Miletus, architect, 16-5717

Isolt and Tristram, story of, 7-2460-61

Isotherms. Lines passing through places having the same temperature over the same period of time.

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Issus. In ancient geography, a town in Cilicia, Asia Minor, near the head of the Gulf of Issus. Three notable battles were fought here: Alexander the Great defeated Darius, 33 B.C.; Septimius Severus defeated his rival Pescennius Niger, 194 A.D.; and Heraclius defeated the Persians under Khusrau, 622.

Isthmus. A narrow neck of land connecting two larger portions, as the Isthmus of Panama connecting North and South America.

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Ivan IV, "the Terrible," tsar of Russia,

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Picture, church refuses blessing to him,

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Ives, Frederic Eugene, and printing pictures in

color, 9-3390

Ivory. Strictly speaking ivory is the material obtained from the tusks of the elephant, which are modified teeth. The name is also given to the inferior material obtained from the teeth of the walrus, hippopotamus, narwhal, sperm-whale and even the wild boar. Considerable ivory is obtained from the tusks of mammoths found in Siberia and elsewhere. (Ser 6-2146.) The chief uses are for billiard balls, knife-handles, piano-keys, toilet articles and ornaments. The nuts from certain species of palm furnish "vegetable ivory," and many substitutes having some of the qualities of the genuine are manufactured.

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obtained from the walrus, 3-1000

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Ivory Coast. French West African colony.

area, 121,590 square miles; chief town, Abidjan.

Rubber, palm-oil, cocoa, mahogany, skins and

nuts are exported.

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- Jackson, Thomas Jonathan** ("Stonewall"). An American soldier, born in what is now West Virginia. He graduated at West Point, served in Mexican War, but resigned in 1852 to teach in the Virginia Military Institute. He entered the Confederate army and soon won a great reputation; fatally wounded at Chancellorsville.
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kept Union forces from Richmond, 7-2434
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- Jackson**. Capital of the state of Mississippi, situated on the Pearl River, 181 miles north of New Orleans. Its manufactures include cottonseed products, lumber products and machinery.
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- James River**. American river, formed by Jackson's and Cow-pasture rivers, Virginia. Flows into Chesapeake Bay. 450 miles.
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- Jay's Treaty**. Negotiated in 1794 by John Jay of the United States and Lord Grenville of Great Britain; an attempt to settle some of the unfilled provisions of the Peace of Paris. Terms were published prematurely in the press and an outbreak of popular wrath against Jay and Washington followed.
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- Jefferson City**. Capital of Missouri, built at an elevation of 600 feet, on the Missouri River, and the centre of a fertile agricultural and rich mineral region where coal and zinc are abundant.
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- Jellicoe, John Rushworth, Viscount of Scapa**. English admiral of the fleet; born in 1859. With Lord Fisher and Sir Percy Scott aided development of naval gunnery. During his period of command was fought the battle of Jutland, 1916. In 1917 Jellicoe was succeeded by Sir David Beatty and returned to the Admiralty as First Sea Lord until the end of 1917. After peace was made he visited the Dominions in a semi-official capacity, and in 1920 became governor-general of New Zealand.
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- Jersey City**. Industrial city of New Jersey, on the Hudson, opposite New York. It has meat-packing, tobacco, glass and chemical factories, sugar refineries, lumber mills and railway workshops.
- Jerusalem**. Capital of Palestine and most famous holy city in the world, being sacred alike to Christians, Moslems and Jews. Divided into Christian, Moslem, Armenian and Jewish quarters, it contains the Church of the Holy Sepulchre and the Mosque of Omar.
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Jingoism. Blustering patriotism. The term originated with the phrase "By Jingo!" in a popular song supporting Lord Beaconsfield's threat of action against Russia in defense of Constantinople in 1878.

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Jiu-jitsu (or "soft art"). The Japanese form of wrestling which makes use of opponent's strength and weight to disable or injure him. It is the application of skill and a knowledge of human anatomy opposed to brute force. Now extensively used as a form of physical culture.

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João, king of Portugal

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Job. The hero of the Old Testament Book of Job, used as an example in the discussion as to the cause of suffering. He loses his wealth, his children and his health, but, in spite of his friends, remains firm in his belief in God, and ultimately triumphs.

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Joffre, Joseph Jacques Césaire. Marshal of France, commander-in-chief of Allied armies, 1915-16; born, Rivesaltes, 1852. Stayed the German invasion at the first Battle of the Marne,

Joffre, Joseph Jacques Césaire (continued)

1914. The failure of French offensives of 1915, and the successful German attack upon Verdun in 1916 were a great blow to his prestige. Succeeded by Nivelle at the end of 1916. Sent on a special mission to the United States in the spring of 1917.

Johanen ben Zakkai, Jewish leader, **19-7158**

Johannesburg. Largest South African city, in Transvaal. Founded in 1886, it owes its importance to its position as the commercial centre of the Witwatersrand gold-field, and it now covers 82 square miles.

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John of Austria, called Don John

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John of Bologna, see Bologna, Giovanni da

John o' Groats. Point in Caithness-shire, regarded as the northernmost point of Great Britain. Its name is derived from a Dutchman, Groot, who built a house here about 1600.

John of Montfort, **12-4226**

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Johnson, Jemima (1753-1814). A Kentucky woman pioneer who was the heroine of an Indian attack on Bryan's Station, Kentucky, in 1782.

Johnson, Richard M., vice-president of U. S.

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* Doctor Johnson and his friends, **5-1867-72**

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Dr. Johnson visiting Sir Joshua Reynolds, **7-2333**

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walking with Oliver Goldsmith, **5-1869**

Johnson, Sir William (1715-74). A famous British officer and Indian-fighter who won his title by defeating the French general Dieskau at Lake George in 1755. He settled in the Mohawk Valley, New York state, and won the confidence of the Six Nations. He became noted for his understanding and control of the tribes in that locality. Johnstown, N. Y., is named for him.

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- Jungfrau**. One of the chief mountains of the Bernese Oberland, Switzerland. It has two sister peaks, the Mönch and Eiger. 13,670 feet.
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- Juniper**, tree or shrub
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- Junius Letters**. A series of caustic political letters directed against the British ministry and others, 1768-72. They were signed "Junius," and though the authorship is not certain, they were probably written by Sir Philip Francis.

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Jura Mts. Thickly wooded mountain range lying between Switzerland and France. 180 miles long, it divides the Rhone valley from that of the Rhine. 5,650 feet.

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Justice of the peace. In Great Britain and the United States, a minor judge whose duties are to administer justice in minor cases and commit for trial to a superior court.

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Jutland, Battle of. A great naval engagement that took place in 1916 off Jutland between the British and German high-seas fleets. Although the German fleet escaped, it never emerged again upon the high seas to fight.

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Kaaba. Sacred shrine at Mecca. It is the point toward which all Mohammedans face during their devotions.

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Kaiser. A title meaning "emperor"; from 1871 to 1918 applied especially to the Hohenzollerns of Germany.

Kaiser Wilhelm Canal, 12-4168

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Kalahari Desert. Vast arid stretch of country in the west of South Africa, largely in Bechuanaland. It has a general elevation of from 3,000 to 4,000 feet, and stretches 600 miles from north to south.

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Kalamazoo River. American river, rising in Hillsdale County, Michigan; flows into Lake Michigan. 200 miles.

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Kamchatka. Peninsula in northeast Siberia, containing a lofty chain of volcanic mountains. The climate is cold and damp, and the people get their living chiefly by hunting and fishing. Petropavlovsk on the Pacific coast has a splendid harbor.

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Kansas. Prairie state on the right bank of the Missouri; area, 82,158 square miles; capital, Topeka. It has great agricultural and stock-raising industries, the source of an important meat-packing trade at Kansas City, which is partly in Kansas and partly in Missouri. The state produces coal and petroleum, as well as zinc and lead. Nickname, "Sunflower State." State flower, sunflower. Motto, "Ad astra per aspera" (To the stars through difficulties). Kansas was the name of a Sioux tribe. First settlement is thought to have been at Leavenworth, 1854.
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Kansas City. Two cities of U.S.A., one in Kansas and the other in Missouri. They are divided by the State Line, although otherwise practically one city, and have a great trade in grain, meat and live stock.
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Kapurthala, India
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Karachi, port in India, 8-2698

Karakoram Mts. Lofty range forming an immense barrier between Central Asia and Kashmir. Here are Mount Godwin Austen, 28,250 feet, and some of the greatest glaciers in the world.

Karamzin, Nicholas, Russian author, 19-6907

Karlsefni, Snorro, first white child in America, 1-241

Karlsefni, Thorfinn, colony in America, 1-241

Karlsruhe. Capital of Baden, Germany, making engines, chemicals and cloth.

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Karnak, Egypt
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Karoo, Great and Little. Pastoral tablelands covering 100,000 square miles in the Cape Province of South Africa. On an average they are about 3,500 feet high.

Kaschau, Kosice or Kassa. Chief city of Slovakia, Czecho-Slovakia, with a fine Gothic cathedral.

Kashmir. Native state of northern India; area, about 85,000 square miles; capital, Srinagar. Much of it consists of a barren tableland be-

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- Katte**, and Frederick the Great, 11-4046
- Kauai**, one of Hawaiian Islands, 15-5448
- Kavala**, seaport of Ægean Sea
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- Kazan**. Trading centre of eastern Russia, on the Volga. Formerly a Tartar city, it has a kremlin containing a splendid monastery and a 16th-century cathedral.
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- Keewatin**. Part of the Canadian Northwest Territories lying west of Hudson Bay and north of Manitoba.
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- Keller, Helen**, life, 14-5272
- Kellogg, Idaho**, note on mines, with picture, 19-6843
- Kells**. Town in County Meath, on the Blackwater. In the 6th century St. Columba founded here a monastery in which the Book of Kells was written; ancient remains include St. Columba's House, a round tower and crosses.
- Kells, Book of**, illuminated manuscript, 2-582
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- Kelp**. The name of certain large seaweeds, also applied to the ash obtained from burned seaweed. Formerly much used in the manufacture of soap and glass, but used to-day mainly as a fertilizer, and for that only dried on the coast. Pacific kelp contains five times as much potash as Atlantic kelp.
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- Ken, Thomas**. English writer of hymns, one of the famous Seven Bishops; born in England, 1637; died, 1711.
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- Kenia**, volcano, height of, 7-2313
- Kenilworth**. Market town in Warwickshire, four miles north of Warwick. The 12th-century castle, made famous by Scott's *Kenilworth*, is one of the largest and finest ruins in England.
- Kenilworth**, by Scott, note on, 11-4070
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- Kenneth**, king of Scotland, 4-1434
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- Kent**. Southeastern English county; area, 1,555 square miles; capital, Maidstone. The most famous, historically, of the English counties, it was the way by which the Romans, the Jutes, and St. Augustine entered Britain; here are Canterbury, and several ancient Cinque Ports, notably Dover, Hythe and Sandwich. At the mouth of the Medway are Chatham, Rochester and Gillingham, forming an important industrial area; the Isle of Thanet is famous for its watering-places; and other notable features are the North Downs, the Weald and Romney Marsh. The most famous seaside resorts are Ramsgate, Folkestone, Margate, Broadstairs and Deal; other places are Dartford, Tunbridge, Tunbridge Wells, Ashford, Sheerness, Gravesend, Faversham and Sevenoaks. Kent is famous for its hops, fruit and sheep, while its fisheries are important. Coal is mined near Dover, and Whitstable has oyster beds.
- Kentucky**. Largest tobacco-producing state; noted also for its horses; produces coal and petroleum, and manufactures much tobacco; area, 40,598 square miles; capital, Frankfort. Louisville is the largest town. Abbreviation, Ky. Nickname, the "Blue Grass State." State flower, golden-rod. Motto, "United we stand, divided we fall." "Kentucky" comes from an Iroquois word meaning "Land of to-morrow" or "Dark and Bloody Ground." First settlement, Harrodsburg, 1774.
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- Kentucky River**. American river, rising in the Cumberland Mountains, Kentucky. Flows into the Ohio River. 250 miles.
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- Kerosene**. A mixture of certain fluid hydrocarbons used for illumination. Has been prepared from bituminous coal and shale (hence called also coal-oil), now produced in immense quantities by the refining of petroleum. Chemically, it is a mixture of several hydrocarbons, chiefly of the methane series.
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- Kerry**. Rugged western county of Munster, Ireland; area, 1,815 square miles; capital, Tralee. Here are the Lakes of Killarney, and Carrantuo-hill, 3,414 feet, the highest Irish mountain.
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- Khafra**, king of Egypt, 3-815
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- Kharkov**, Capital, university and trading centre of the Ukraine, Russia.
- Khartoum**, Sudanese capital, at the junction of the Blue and White Nile. Famous as General Gordon's headquarters, it is a railway centre, and contains a cathedral and the Gordon Memorial College.
- Khedive**. The title granted in 1867 by the sultan of Turkey to the viceroy of Egypt.
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- Khufu**, king of Egypt, 3-808
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- Khyber Pass**. Mountain highway which from the earliest times has been the road of invaders entering India. Running for about 30 miles among the wild border ranges of Afghanistan, it is traversed by the trade route from Kabul to Peshawar.
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- Kiel**. German naval port on the Baltic, near the eastern entrance to the Kiel Canal. It has large shipbuilding yards and a busy export trade.
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- Knox, Henry** (1750-1806). American Revolutionary soldier, born in Boston. He served with credit through the whole war, and was Secretary of War (1785-95) both under the Confederation and under the Constitution.
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- Kohl-rabi**, development from cabbage, 7-2618
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- Koltsov, Alexis**, Russian poet, 19-6908
- Kongo Free State**, *see* Congo Free State
- König, Frederick**. German printer; born, Eisen, Prussia, 1774; died, 1833; inventor of the steam press.
press used by London Times, 9-3389
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- Königsberg**. Capital of East Prussia, Germany, on the Pregel. It has a university and a 14th-century Gothic cathedral.
- Koran**, sacred book of Mohammedans
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- Kosciusko, Thaddeus**. Polish patriot and general; born, Merezowszczyzna, Lithuania, 1746; died, Solothurn, Switzerland, 1817. Fought in American Revolutionary army; and constructed fortifications at West Point; afterward prominent in unsuccessful Polish struggles for independence.
led Polish uprising, 13-4684
Picture, portrait, 4-1161
- Kossuth, Louis**. Hungarian patriot; leader of revolt against Austria in 1848; born, Monok, 1802; died, Turin, 1894.
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Picture, portrait, 13-4583
- Koweit, Arabia**, 18-6676
- Krafft, Adam**, stone-carver, 13-4699-4700
- Krait**, snake, 15-5414
- Krak, Prince**, founder of Cracow, 13-4679
- Krakatoa**. East Indian island lying between Java and Sumatra. It once occupied 18 square miles, but in 1883 a tremendous volcanic eruption from an old crater blew away two-thirds of it, hurling thousands of tons of ash and pumice into the air. The explosion was heard 3,000 miles away, and was followed by tidal waves which drowned thousands of people.
- Kraker**, imaginary monster, description, 1-358
- Kranach, Lucas**, *see* Cranach, Lucas
- Kreighoff**, Canadian painter, 10-3700
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- Kremlin**, in Russian cities, 16-5858
- Kronos**, god, 9-3226
- Kruger, Paul**, president of the Transvaal in Boer War, 9-3050
- Krummacker, Friedrich Adolf**, *see* Poetry Index for poem and note
- Krupp Works**. Great factories at Essen, Prussia, for the making of war munitions and ordnance supplies. Their founder was Frederick Krupp, whose son Alfred introduced the Bessemer steel process into Germany. Limited in their armament production after the World War, they manufacture agricultural implements and machinery of all kinds.
- Krus, Kru-boys, or Kru-men**. Dwellers by the West African coast from below Monrovia to Cape Palmas. Originally living in the interior of Africa, they have developed a great love for the sea, and are much employed by European skippers trading on that coast. They are hard-working and cheerful, but greedy and brutal.
- Krylov, Ivan**, Russian poet, 19-6907
- Ku Klux Klan**, after Civil War, 7-2444
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- Kublai Khan**, Mongol ruler of China and Marco Polo, 1-84-85; 2-432
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chose Peking as capital, 2-432
- Kuching**, capital of Sarawak, 9-3186
- Kudos**. Greek word meaning "renown"; used in conversational English in a similar sense.
- Kudu**, animal, 4-1443
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- Kum**. Persia
Picture, mosque, Fatima's shrine, 3-921
- Kumasi**, capital of Ashanti, 9-3056
- Kumquats**, variety of orange, 6-2058
- Kunz, George F.**, authority on precious stones, 19-7234
- Kunzite**, semi-precious stone
Picture (in color), facing 19-7225
- Kurds**. Modern representatives of the ancient Medes who are speakers of an Aryan language. They inhabit Kurdistan.
- Kurile Islands**. Volcanic island chain stretching from Japan to Kamchatka. Most of them are inhabited only during the summer fishing season. The name comes from the Russian word *kurit*, to smoke, as many of the volcanoes are still active.
- Kustenje**, Rumania, *see* Constantza
- Kut-el-Amara**, siege of, 8-2802
- Kuyp, Albert**, *see* Cuyp, Albert
- Kwen Lun**. Lofty mountain chain stretching for 2,000 miles through China, Tibet and Kashmir. At its western end it is 20,000 feet high.
- Kyak**, Eskimo canoe, 7-2566
- Kyoto**. Capital of Japan 793-1869, and centre of the Japanese artistic industries. It is situated on the island of Hondu, on the Kamagawa River. It has an Imperial university with colleges of law, medicine and engineering.
- Laberius, Decimus**, Roman author, 16-5909
- Labiate Family**, *see* Mint Family
- Labor**, element in economic production adds value to raw material, 9-3212, 3214
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- Labore et honore**. Latin for "by labor and honor."
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- Labrador Current**. A cold current moving southward from arctic regions following the western side of Davis Strait. Off the southeast part of Newfoundland it comes into contact with the Gulf Stream and sets up an eastward drift, the Gulf Stream drift. Causes fogs.
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- La Condamine, Charles Marie de**, sent first samples of rubber to Europe, 4-1405
- Lacquer ware**. Decorative articles made of wood, coated with Japanese or other Oriental lacquer in a varnish generally made with resin as the base. About fifteen coats of varnish are applied to make this very durable coat.
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- Lacrosse**, game, rules for, 14-5115-16
- Lacteals**, vessels for carrying fat, 6-2086
- Lactic acid**, in milk, 17-6175
- Lactose**, sugar from milk, 10-2416; 17-6175
- Lacuna**. Gap, or missing part, especially in old manuscripts. The word comes from the Latin *lacus*, lake.
- Ladies' tresses**, *see* Lady's tresses
- Ladoga, Lake**, size, 7-2484
- Ladon**, a Greek river, and Syrinx and Pan, 9-3236
- Ladrona, or Mariana, Islands**. Volcanic island group in the northwest Pacific. Discovered by Magellan in 1521, they were sold by Spain to Germany in 1899, and in 1920 passed under Japanese mandate. Guam belongs to the United States.
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- La Farge, John**, American painter, 9-3334, 3336
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- Lafayette, Marie Jean Paul Yves Roch Gilbert du Motier, Marquis de** (1757-1834). Distinguished French officer who upon the outbreak of the American Revolution arrived from France and was attached to the staff of General Washington. Wounded at Brandywine; retreated brilliantly from Barren Hill. Fought with Lee at Monmouth, and co-operated by land with French sea attack on Newport. In 1781 he operated against Arnold in Virginia, where Cornwallis pursued him. But Lafayette joined with Wayne and forced Cornwallis to retreat to Yorktown, where he surrendered. During French Revolutionary wars he perfected the organization of National Guard. After excesses of populace he sympathized with the king and had to fly to Flanders, where he was imprisoned by the Austrians. He took no part in public affairs under Napoleon, but was in French Chamber 1818-34. Revisited the United States in 1824 and was received with great enthusiasm.
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- La Fontaine, Jean de**. Most famous French writer of fables; born, Château-Thierry, 1621; died, Paris, 1695.
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- Lagerlöf, Selma**, Swedish author, 19-7014
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- Lagoon**. A sound, channel or lake near to or communicating with the sea.
- Lagos**, Nigeria, 9-3056
- La Guayra**. Port of Caracás, capital of Venezuela, trading in cotton, sugar, hides, coffee, cocoa and indigo.
- La Hogue, Battle of**. Sea-fight in 1692 between the combined fleet of 99 English and Dutch ships and 44 French ships under the Comte de Tourville. The French were preparing an expedition against England, but were severely defeated on their own coast.
- Lahore**. Capital and railway centre of the Punjab, India, with two cathedrals and splendid native buildings.
- Lake-dwellings**, in ancient Switzerland, 18-6000
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- Lake lawyer**, name for hake, 16-5780
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- Lakh of rupees**. 100,000 Indian rupees, equivalent at the face value of the rupee to \$48,665.
Lakh, or lac, is from the Sanskrit *laksha*, meaning "one hundred thousand."
- Laliberté, Alfred**, Canadian sculptor, 14-5078
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- Lamp shades**, paper, how to make, 18-6777
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- Lampman, Archibald**, Canadian poet, 14-5108
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- Lamprey**. An eel-like order of aquatic vertebrates widely distributed in temperate regions in both fresh and salt water. They have large mouths with small teeth, a single nostril and seven gill-pouches on each side. Some are edible. The larger kind attach themselves to fish and tear off their flesh with their horny teeth.
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- Landon, Walter Savage**, poetic style, 12-4229
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- Landrails**, birds
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- Land's End**. Westernmost point of Great Britain, lying nine miles from Penzance, in Cornwall. From here to John o' Groats is usually considered the extreme length of the island. The vicinity is noted for its scenery.
- Landscape painting**, *see* Painting—landscape
- Landseer, Sir Edwin**, English artist
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- Languedoc**. Old French province bordering the Gulf of Lyons. In ancient times it contained some of the largest Roman settlements in Gaul, notably at Narbonne and Nîmes, and it was the most cultured part of France up to the Albigensian Crusade. Toulouse, Aigues-Mortes, Montpellier and Carcassonne were among its towns.
- Lanier, Sidney**, American author, 13-4815-16
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- Lansing**. Capital of the state of Michigan, 85 miles northwest of Detroit, it has varied manufactures, including agricultural implements, automobiles, gasoline engines, furniture, wagons, electric supplies, etc. Power is supplied from the Grand and Cedar rivers, which meet here.
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- Laocon**, sculptural group, 12-4460
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- Laon**. Historic city of northern France, having been the capital of the West Franks. Formerly a strong fortress, it has a fine Gothic cathedral and a bishop's palace.
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- Lao-tsze**, founder of Taoism, 9-3088, 3090
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- La Paz**, capital of Bolivia
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- La Pérouse, Comte Jean de**. French navigator, rival of Captain Cook; born near Albi, 1741; lost at sea, 1788.
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- Laplace, Pierre Simon de**, French scientist
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- Lapland**, inhabitants, 15-5304
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- La Plata**. Wide South American estuary on which Buenos Aires and Montevideo stand. It forms part of the boundary between Uruguay and Argentina. 145 miles broad at its mouth, it receives the Paraná and Uruguay rivers and drains 1,400,000 square miles, 200 miles.
- La Plata, Viceroyalty of**, 19-7033-34
- Lapsus linguae**. Latin phrase meaning "slip of the tongue." A similar phrase is *lapsus calami*, slip of the pen.
- Lapwings**, birds
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- Laudonnière, René de**. A French navigator of the 16th century, who with Ribault founded a colony of French Huguenots near the St. John's River, Florida, between 1562 and 1565.
- Laughing jackass**, kind of kingfisher, 9-3374
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- Laurentic**, ship, torpedoed in 1917
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- Lausanne**. Swiss city near Lake Geneva, capital of the canton of Vaud; famous as an educational centre. It has a university and a fine Gothic cathedral.
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- Lava**. Fluid rock which flows from a crack in the earth's surface or from a volcano. It is mineral matter dissolved in mineral matter, solution taking place at a high temperature. If it cools rapidly, it produces glass, as obsidian; if slowly, a crystalline rock. If it is full of expanded gases, it produces a cellular texture, as in pumice. Lava flows out in streams or may overflow in sheets.

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- Lawrence, St.** Deacon to St. Sixtus who, when commanded by Valerian to give up the treasure of the Church, gathered together the poor and cripples of Rome, saying: "These are the church's treasures." He was broiled to death over a slow fire about 258 A.D.
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- Lazaretto.** Hospital for the diseased poor, especially lepers; also a building or ship used for purposes of quarantine. The word is Italian.
- lazar** (Lazarus), meaning "poor man." The French form of the word is *lazarette*.
- Laziness**
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- Lead** (Pb). A soft grayish metal, fairly malleable. It does not occur as a pure metal, and its commonest form is galena (PbS, sulphid of lead). The United States is a great lead-producer. Canada also has great deposits of galena and other lead-ores.
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- Lee, Charles** (1731-82). British-American soldier. He served in British army, but came to America in 1773, and was later appointed major-general by Congress. After service in the South he was in command under Washington, and was captured by the British. Long afterward it was discovered that he was willing to betray his adopted country.
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- Lee, Sir Sidney,** English author and biographer; born, London, 1859; died, 1926.
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- Leech, worm.** *Picture*, 19-7145
- Leeds.** Chief centre of the Yorkshire cloth industry, on the Aire. An important railway and commercial centre, it has large leather and engineering industries and many other manufactures, though the woolen trade is much the most important. There are a university and a Roman Catholic cathedral, while within the city bounds is Kirkstall Abbey.
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Leinster. Eastern province of Ireland, comprising 12 counties; area, 7,624 square miles.
Leipzig. Commercial city in Saxony, Germany, famous for its great printing and book trades, its industrial fairs, its university, and its piano-forte, paper, chemical and scientific-instrument manufactures.
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Leipzig, Battle of. Fought between Napoleon and the allied Russians, Austrians, Prussians and Swedes in 1813, and known as the Battle of the Nations. Blücher with 60,000, Schwarzenberg with 240,000, and Bernadotte with 135,000 men, pressed Napoleon so hard that his Saxon allies went over to the enemy, and he brought back only a part of his 300,000 men.
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Letters of marque. Commissions to private persons to prey on shipping of an enemy in war, abolished at Congress of Paris, 1856.
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Lettre de cachet. In France a sealed letter directing the arrest and imprisonment of a person without trial; abolished by the Revolution.
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- Liberia**. West African Negro republic; area, 40,000 square miles; capital, Monrovia. Founded by the American Colonization Society in 1822 for the resettlement of freed slaves, it was recognized as independent in 1847. Palm kernels and oil, piassava, coffee, cocoa, ivory and kola nuts are exported.
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- Liberté, Egalité, Fraternité**. French for "Liberty, Equality, Fraternity"; the motto of the French Republic, adopted as a motto by the Revolutionists in 1789.
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- Liberty Bell**. Famous bell in Independence Hall, Philadelphia. The bell was ordered from England by the Pennsylvania General Assembly in 1751 and arrived in 1752, but cracked before it was hung. It was recast twice in Philadelphia, and hung. When the Declaration of Independence was formally read to the people, July 8, 1776, the bell was rung both before and after. It cracked while tolling for the funeral of Chief Justice Marshall, fifty-nine years afterward. The poem on page 5648 is inaccurate historically.
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- Liechtenstein**. Principality on the Upper Rhine, between Switzerland and Austrian Vorarlberg; area, 65 square miles. It is the third from smallest sovereign state in Europe.
- Liège**. Belgian city on the Meuse, in a great coal-mining district. Besides woollens and leather, it has a great manufacture of iron and steel, the locomotive works at Seraing near by being especially important. Heroically resisted German advance in 1914 until overwhelmed by artillery fire and superior numbers.
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- Limerick**, Capital of County Limerick, Munster, and third largest city of the Irish Free State. Standing where the Shannon becomes navigable, it is a considerable port; dairy produce being the chief export; there is also trade in lace.
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- Limoges**, Old capital of the former French province of Limousin, with a famous porcelain industry. Its Gothic cathedral, begun in the 13th century, was completed in 1851.

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Limpopo, or Crocodile, South African river forming the northern border of the Transvaal, 1,900 miles.

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Linchpin, pin passed through the axle-end to prevent a wheel from working its way off

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- Lincoln**, Capital of the state of Nebraska, 51 miles southwest of Omaha. It is the centre of an important grain and milling trade. It is also a manufacturing city. The University of Nebraska is here.
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- Liquid compass**. One in which the card is submerged in a chamber filled with liquid—generally 35 parts of alcohol and 65 of distilled water, but sometimes oil.
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- Lodore, Falls of.** Series of cascades at the upper end of Lake Derwentwater, Cumberland, England.
- Lodz.** Second largest Polish city, with great textile manufactures.
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- Londonderry.** Second largest city of Northern Ireland, capital of County Londonderry. Standing on the Foyle, it is surrounded by walls, and is famous for its resistance to James II. a 1689. Agricultural produce is exported and linen manufactured, and there are Protestant and Roman Catholic cathedrals.
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- Long dozen.** Thirteen. The term is employed in selling articles when an extra article is given with every dozen as an inducement to purchase. A variant term is "baker's dozen."
- Long Island.** An island forming the southeastern section of New York state. Area, 1,682 square miles; length, 118 miles; width, 15 to 23 miles. Brooklyn is one of the boroughs of Greater New York City. Many popular summer resorts are situated on Long Island. The many market gardens have caused Long Island to be nicknamed "New York's vegetable garden."
- Long Island, Battle of.** Battle of Revolution fought on present city of Brooklyn, Aug. 27, 1776. American army was badly defeated, and barely escaped capture.
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Lorraine, Old French province which contains Metz, Nancy and Verdun. Part of it which was taken by Germany in 1871 was restored to France in 1918.

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Los Angeles, Progressive and rapidly growing California city, the center of the American moving-picture industry. There is also a great export trade in fruit, besides engineering and oil industries. Noted for the public spirit and community pride of its people.

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Louisiana, State containing the mouth of the Mississippi, area, 18,525 square miles; capital, Baton Rouge. It produces much cotton, sugar, rice, corn and fruit, and has forests of pine, cypress, oak, white-oak and magnolia. Leads in production of sulphur, and also has much petroleum. Here is the great port of New Orleans, the largest city in the state. Abbreviation, La. Nickname, "Lafayette State" or "Cotton State". State flower, magnolia. Motto, "Union, Justice and Confidence." Louisiana was named for Louis XIV of France by Robert de La Salle in 1682. First settlement, below New Orleans, 1763.

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Louisville, Kentucky, A center of navigation on the Ohio River, in the middle of agricultural country, great up to truck carriages. Nearby are large forests and coal and iron mines. The city has many educational institutions. New England transportation facilities make Louisville the center of a great distribution trade. The Southwestern market is one of the largest in the world, and there are large hardware and grocery houses, meat-packing plant, wagon and coach works.

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- McAdam, John Loudon**. Scottish engineer, the inventor of macadamized roads; born, Ayr, 1756; died, Moffat, Dumfriesshire, 1836.
- MacAlpine, Kenneth**, early Scottish ruler, 12-4205-06
- Macao**. Portuguese settlement, established in 1557, at the mouth of the Canton River, China.
- Macaroni**. A wheat paste containing a large percentage of gluten. It is made in the form of tubes of different diameters. Formerly a product peculiar to Italy, now made in China, France, the United States, etc. After the wheat is ground and the bran removed, it is worked into a dough with hot water and squeezed through a cylinder perforated at the bottom with holes of the size required. The strips, usually 3 feet in length, are then dried in the sun.
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- MacCarthy, Hamilton P.**, Canadian sculptor, 14-5075
- McCaw, Isabel**, see Poetry Index for poem and note
- McClellan, George Brinton** (1826-85). An American soldier, born in Philadelphia. He graduated at West Point; served in Mexican War; later resigned from army to engage in railroad building. During the first part of the Civil War he held high command; Democratic candidate for president, 1864; governor of New Jersey, 1878-81.
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- Mace**. A heavy staff or club, and often a spike, used in the Middle Ages for breaking armor. Often carried before a magistrate or dignitary as a symbol of his authority.
- Macedonia**. Native kingdom of Alexander the Great, but now belonging chiefly to Jugo-Slavia and Greece. It is peopled by a great mixture of races, including Bulgars, Serbs, Jews, Greeks, Turks and Vlachs.
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- Mackenzie**. Great Canadian river, rising in the Rockies and flowing into the Arctic. It is navigable for many miles in summer. Including the Peace River it is 2,350 miles long.
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- Madagascar**. Largest island in the Indian Ocean; area, 228,000 square miles; capital, Antananarivo. Peopled by Malagasy races of mixed African and Asiatic descent, it was discovered by the Portuguese in 1500, and was for many centuries an independent kingdom; the French established trading posts on the island in the 17th and 18th centuries, finally annexing it in 1896. Rice, sugar, hemp, cocoa, coffee, cotton, tobacco, rubber, gums and graphite are produced, and there are important radium deposits. Tamatave is the chief port.
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- Madder**, plant, produces dye, 9-3154
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- Madeira**. Beautiful Portuguese island off the Moroccan coast; area, 315 square miles; capital, Funchal. Noted for its fertility and fine climate, it produces oranges, guavas, figs, mangoes, bananas, lemons, coffee and wine.
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- Madeira River**. Chief tributary of the Amazon, almost rivaling it in size. It drains 425,000 square miles and is about two miles wide at its mouth. 2,200 miles.
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- Madison**. Capital of the state of Wisconsin, 82 miles from Milwaukee. The University of Wisconsin is here; manufactures include agricultural implements, boots and shoes, gasoline and oil engines, machine tools, candy, art glass, etc.
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- Madras**. Third largest Indian city and port, on the Coromandel coast. Fort St. George was founded here in 1640, and the city, capital of the Presidency of the same name, is now the commercial centre of southern India.
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- Madrid**, capital of Spain, 14-5050
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- Madura**. City of southern India, makes brass vessels and cottons. Here is a splendid ancient temple.
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- Mæcenæus, Caius**. Roman statesman, patron of Virgil and Horace; lived 74-8 B.C.
- Maelström**. Strong current, once thought to be a whirlpool, between two of the southernmost of the Lofoten Islands, Norway. The word is often used figuratively, signifying stormy events.
- Maes, Nicolaes**, Dutch painter, pupil of Rembrandt.
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- Maeterlinck, Maurice**
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- Mafeking**. Administrative centre for British Bechuanaland, South Africa. It is famous for its defense by Sir Robert Baden-Powell in the Boer War, October 12, 1899, to May 17, 1900.
- Mafra, Monastery of**. *Picture*, 14-5191
- Magdalena**. River of Colombia, South America, flowing into the Caribbean Sea, 1,000 miles.
- Magdeburg**. German commercial city on the Elbe, with sugar, iron and cotton industries. It underwent a terrible sack in the Thirty Years' War.
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- Magi** (magicians or soothsayers). The priestly order of ancient Media, or Persia. Their religion was similar to that of the Parsees, and included belief in the advent of a Savior. The Gospel of St. Matthew tells of the coming of the wise men, or magi, from the East to worship Christ.
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- Magnetite**. A white brittle mineral with a glassy lustre. It occurs in compact or cleavable masses that look like porcelain. It is used for toilet preparations, paper-making and, with asbestos, as a fireproof covering for furnace pipes.
- Magnet**, see Magnets
- Magnetic balance**. A device for measuring magnetic forces, the principle being that gravitational force, due to a known weight, is balanced against the magnetic repelling force between two similar magnetic poles.
- Magnetic needle**, effect of electric current, 4-1251
- Magnetic poles**
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- Magnolia trees**, 12-4386
- Magnum opus**. Latin term meaning "great work." In English it is frequently applied to the principal literary work of an author.
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- Magyars**
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- Mahan, Alfred Thayer**. Eminent American naval historian; born, West Point, New York, 1840; died, Washington, 1914. His book, *The Influence of Sea Power upon History, 1660-1783*, exercised a great effect upon the policy of nations.
- Mahmud of Ghazni**, 8-2822
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- Mail-order service** of department stores, 10-3678
- Mail service**, see Postal service
- Mailshells**, see Chitons
- Main**. Chief German tributary of the Rhine, passing Bamberg, Wurzburg, Frankfurt and Mainz. 300 miles.
- Maine**. Northeasternmost state; area, 33,040 square miles; capital, Augusta. Portland is the largest city, and Bangor is an important town. Agriculture, lumbering, manufacturing, quarrying and shipbuilding are the principal industries. Abbreviation, Me. Nickname, "Pine Tree State." State flower, pine cone and tassel. Motto, "Dirigo" (I direct). The state was named for Maine, an ancient province of France possessed by Queen Henrietta, wife of Charles I of Great Britain. The first settlement was in Saco, in 1622.
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- Mainz**, or **Mayence**. Ancient German city at the junction of the Rhine and Main. It has a fine cathedral and a museum of Roman remains.
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- Majorana**, Major, and wireless telephony, 17-6248
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- Majorca**. Largest of the Spanish Balearic Islands; area, 1,325 square miles; capital, Palma.
- Majuba Hill**, Battle of, 9-3050
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- Malacca Strait**. Channel about 500 miles long connecting the Indian Ocean and South China Sea, and dividing Malay Peninsula from Sumatra.
- Malachite**, semi-precious stone
Picture (in color), facing 19-7225
- Malaga**. Important port in southern Spain, exporting olive-oil, wine, lead, fruit and esparto grass. It has a cathedral and a Moorish castle.
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- Malamute dogs** of Eskimos, 7-2564
- Malaria**
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- Malays**. People who live in the Malay Peninsula, Tidor, Ternate, Borneo coastlands, and parts of the Sulu archipelago. They are more recent than the primitive Malaysians, whom they have dominated, and in many places supplanted. They originated from a tribe in Sumatra in the 13th century, and, becoming Mohammedans, spread their culture and language throughout the peninsula and archipelago.
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- Maldivo Islands**, 9-3184
- Malherbe**, François de, French poet, 18-6711
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- Malleability**. The quality of being extended or shaped by beating with a hammer or by the pressure of rollers. Many metals are malleable, noticeably gold, silver, copper, tin, platinum, lead, zinc (when hot).
- Mallet**, David, poet
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- Malmö**. Third largest Swedish city and port, opposite Copenhagen. It exports timber, matches and dairy produce.
- Malope**. *Picture*, flower (grave), 19-7175
- Malory**, Sir Thomas, author of *Morte d'Arthur*, 1-305
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- Malplaquet**, Battle of. Fought in 1709, during the War of the Spanish Succession, between the French under Marshal Villars and the British and Imperial troops under Marlborough and Prince Eugene. After a desperate struggle the allies forced the French to retire, but the allied casualties were greater than those of the French.
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 yellow-fronted (in color), 10-3621
- Manatee**, sea mammal, 6-2213-14
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- Mancha**, La, district in Spain, 5-1629
- Manchester**. Commercial capital and centre of the cotton trade of Lancashire, England. Covering over 20,000 acres, it is the greatest purely commercial city in England, and is closely surrounded by a network of industrial towns, of which it is practically one with Salford. In addition to its great textile trade, it is important as an engineering and railway centre, while there are many manufactures. The Manchester Ship Canal, navigable for ships of 12,500 tons, connects the city with Eastham on the Mersey, making it a port. It has a cathedral, built in 1421, and a university.
- Manchester Ship Canal**, note and picture, 13-4789
- Manchu dynasty**, China, 2-432
- Manchuria**. Important dependency of China, in the extreme northeast. The Manchus formerly supplied the ruling dynasty of China, but their power declined rapidly during the last century, and the greater part of the population of Man-

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Manchuria (continued)

churia is now Chinese. The dependency is rich in minerals and timber, and much millet, wheat, barley and cotton is grown. Mukden, Harbin and Kirin are the chief towns. Area, 363,610 square miles.

settled by Manchus, 2-432

Mandalay. Capital of Upper Burma, India, on the Irrawaddy. Here is a temple with several hundred pagodas.

Mandamus. The Latin for "we command." An extraordinary legal remedy or order issued by a superior court to an inferior court or individual, directing it or him to perform a public duty as required by law.

Mandarin. A Chinese public officer, one of the nine orders entitled to wear a button on the hat. Called by the Chinese *Kuan*.

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Manioc, root-plant, furnishes tapioca, 5-1624

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Manitoba. Canadian prairie province; area, 252,000 square miles; capital, Winnipeg. Wheat, oats, barley and flax are grown, and horses, cattle and swine reared. Winnipeg is the grain market of the eastern prairie region

became province of Dominion, 4-1489

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Manitoba Lake. In the province of Manitoba, Canada. Area, 1,817 square miles.

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Manlius Imperiosus Torquatus, Titus, Roman consul, 11-3806

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Manna grass. *Picture* (in color), 10-3523

Mannheim. German chemical and dyestuff-manufacturing centre, on the Rhine.

Manning, Henry Edward, Cardinal. English divine; born, Totteridge, 1808; died, 1892; succeeded Cardinal Wiseman as Roman Catholic archbishop of Westminster.

Picture, portrait by G. F. Watts (gravure), 6-2237

Manoel II, last king of Portugal, 14-5188

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Manson, Sir Patrick. British physician and parasitologist, originator of a great campaign against the malaria-carrying mosquito; born, Fingask, Aberdeenshire, 1844; died, 1922.

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- Marmora, Sea of.** Small inland sea lying between European and Asiatic Turkey. It connects with the Black Sea by the Bosphorus and with the Mediterranean by the Dardanelles.
- Marmots, animals,** 3-1132
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- Marne.** Chief tributary of the French Seine. Rising in the Langres plateau, it flows past Châlons and Epervay in Champagne to join the main stream at Charenton. On the Marne the German invasion of France was checked in 1914. 320 miles.
- Marot, Clément,** French poet, 18-6565
- Marque and reprisal.** Letters of marque were commissions issued by warring nations to ships commanded by their own citizens or neutrals, authorizing them to make war upon the enemy. Origin of term from *mark*, or *march*, a boundary. Much in use during the 16th and 17th centuries, rarer at the end of the 18th, and finally by the Declaration of Paris abolished by all nations except by the United States.
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- Marston Moor, Battle of**. Fought in 1644. Scots and Parliamentarians besieged York, and Royalist forces marched to its relief under Prince Rupert. Cromwell and his Ironsides turned the tide, and 3,000 of the 18,000 Royalists were slain. The victors entered York.
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- Martial**, Latin poet, quotations from, 16-5913
- Martial Law**. Law administered by the military power of government which has taken the place of the civil government in time of war or other exigency.
- Martin, St.** (c. 316-400). Roman soldier who, after giving half his cloak to a beggar, had a vision of Our Lord, and was baptized in 356. He afterward became Bishop of Tours, and is said to have made many converts and worked miracles. His tomb is still visited by pilgrims. The patron saint of infantrymen.
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itesto. Led a wandering life because of revolutionary activities. Great work *Das Kapital*.
- Mary I**, queen of England, 5-1817
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- Mary**, queen of Hungary
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- Mary of Modena**, wife of James II of England, 6-1981
- Mary Queen of Scots (Mary Stuart)**
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- Maryland**. Atlantic state; area, 12,327 square miles; capital, Annapolis. Agriculture, coal-mining and varied manufacturing are the important industries. A fertile fruit-growing district, it contains the great port of Baltimore, the largest city in the state. Abbreviation, Md. Nickname, "Old Line State" or "Cockade State." State flower, black-eyed Susan. Motto, "Fatti maschii parole femine" (Manly deeds and womanly words). Named in honor of Queen Henrietta Marie, wife of Charles I of England. First settlement, St. Mary's, 1634.
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- Massachusetts**. One of the smallest but most important states; area, 8,266 square miles; capital and largest city, Boston. Settled in 1620 by the Pilgrim Fathers, it is now a great manufacturing state, containing Worcester, Springfield, New Bedford, Fall River, Lowell, Cambridge and many other busy towns. Fishing and quarrying are important. Abbreviation, Mass. Nickname, "Bay State" or "Old Colony State." Flower, mayflower. Motto, "Ense petit

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placidam sub libertate quietem" (With the sword she seeks quiet peace under liberty). Massachusetts comes from an Algonquian name meaning "big-hill-small-place." First settlement, Plymouth, 1620.

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|--------------------|---------|-------------|------------------------|---------|-------------|
| Aluminum cast- | | | Chrome nickel | | |
| ing..... | 15,000 | | vanadium steel | 129,100 | |
| Aluminum wire... | 50,000 | | Manganese steel | | |
| Aluminum bars.. | 28,000 | | (cast)..... | 90,000 | |
| Nickel aluminum | 40,000 | | Manganese steel | | |
| Aluminum bronze | 70,000 | | (quenched).. | 140,000 | |
| Manganese bronze | 60,000 | | <i>Woods</i> | | |
| Phosphor bronze. | 46,000 | | Ash..... | 14,000 | |
| Tobin bronze.... | 66,000 | | Black walnut.. | 12,000 | |
| Bronze gun metal | 35,000 | | Beech..... | 14,500 | |
| Platinum wire... | 32,000 | | Cedar..... | 10,000 | |
| Tin..... | 3,500 | | Chestnut..... | 10,000 | |
| Gold (cast)..... | 20,000 | | Elm..... | 13,400 | |
| Silver (cast).... | 40,000 | | Hemlock..... | 8,700 | |
| Lead..... | 2,000 | | Hickory..... | 15,000 | |
| Zinc..... | 5,400 | | Locust..... | 22,000 | |
| Brass (cast).... | 24,000 | | Lignum vite... 11,000 | | |
| Copper (cast)... | 24,000 | | Maple..... | 10,500 | |
| Soft copper wire | 35,000 | | White oak..... 14,500 | | |
| Hard copper wire | 60,000 | | Live oak..... 13,000 | | |
| Cast iron..... | 20,000 | | Poplar..... | 7,000 | |
| Cast steel..... | 60,000 | | Redwood..... 8,500 | | |
| Wrought iron.... | 50,000 | | Spruce..... | 14,500 | |
| Carbon steel.... | 60,000 | | White pine.... 12,000 | | |
| Nickel steel.... | 80,000 | | Yellow pine... 11,000 | | |
| Steel for bridges. | 60,000 | | Red fir..... 10,000 | | |
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| Vanadium steel.. | 100,000 | | Teak..... | 14,000 | |

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- Maximilian II.** German king and Holy Roman Emperor; born, Vienna, 1527; died, 1576.
- Maximin II.** or **Maximinus, Galerius Valerius**. Roman emperor and general; born in Illyria; reigned A.D. 308-314.
- Maximinus Thrax**. Roman emperor, 235-38; Maximinus I, or Maximin, Gaius Julius Verus, called Thrax (the Thracian).
- Maximum thermometer**. One that registers by a small indicator the highest temperature recorded.
- Maxwell, James Clerk**, see Clerk Maxwell, James
- May**. The fifth month of the year, named for the goddess Maia; containing 31 days.
- May**, poetic name for English hawthorn, 12-4393
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- Mayo**. Rugged western county of Ireland; area, 2,158 square miles; capital, Castlebar.
- Mayor**. The chief executive of a municipality; used in England, Ireland and the United States and other countries settled by the English. In early Frankish history the mayor of the palace was the chief officer of the royal household.
- Mazarin, Cardinal Jules**. French statesman, the successor of Richelieu; born, Piscina, Italy, 1602; died, Vincennes, 1661.
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- Meade, George Gordon** (1815-72). American soldier, born in Spain. He graduated from West Point, served in Mexican War and during whole of Civil War. After June, 1863, he commanded Army of Potomac.
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- Mealies**. South African name for edible part of Indian corn; principal food of South African natives.
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- Meath**. County of Leinster, Ireland; area, 906 square miles; capital, Trim.
- Meaux**. Old French city on the Marne, 28 miles northeast of Paris, with a splendid Gothic cathedral. It has manufactures of steel and textiles and a large agricultural trade.
- Mecca**. Moslem holy city, capital of the Hedjaz, Arabia. The birthplace of Mohammed, it contains the mosque in which is the sacred Kaaba, visited annually by vast numbers of pilgrims.
supreme goal of Mohammedans, 18-6675.
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- Mechlin**, or **Malines**. Ancient Belgian city, famous for its lace. The splendid cathedral covers nearly two acres, while there is a medieval town hall and cloth hall. The railway shops are important.
- Mecklenburg County, N. C.**
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- Medea**, Greek sorceress
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- Media**, ancient kingdom, 3-912
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- Medici, Lorenzo de**, the **Magnificent** (1449-92). One of the most famous members of the celebrated Florentine family; patron of scholars and artists.
- Medicine**, history of
- * **Contributors of disease**, 15-5481-93
* **World's great doctors**, 8-2721-30
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- Medicine Man**. Among the Indians a man who professes to cure sickness, drive away evil spirits, and control the weather by the use of "medicine," that is to say, magical power.
- Medicine plants**, * 8-2909-13
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- Medina**. Burial-place of Mohammed, and terminus of the Hedjaz Railway, Arabia. After Mecca it is the holiest Moslem city.
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- Medina-el-Zamra**, near Cordova, 9-3356
- Mediterranean Sea**. Largest and most important inland sea, the cradle of European civilization. It contains the Tyrrhenian, Ionian, Adriatic and Aegean seas, and is roughly divided into three basins, the eastern of which is known as the Levant. The Nile is the only great river

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that flows into it, but there are many large and important islands, notably Corsica, Sardinia, Majorca, Sicily, Corfu, Crete, Cyprus, Rhodes, Malta, the Cyclades and Sporades. Among the greatest ports are Valencia, Barcelona, Marseilles, Toulon, Genoa, Leghorn, Naples, Palermo, Catania, Messina, Venice, Trieste, Piræus, Salonica, Smyrna, Beirut, Alexandria, Tunis and Algiers. The Mediterranean connects with the Atlantic by the Strait of Gibraltar; with the Sea of Marmora by the Dardanelles; and with the Red Sea by the Suez Canal.

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Meerut, Military centre in the United Provinces, India. Here the Indian Mutiny of 1857 broke out.

Meighen, Arthur, premier of Canada, 4-1491

Meissen. Home of the Dresden china industry, on the Elbe, in Saxony. An important place in the Middle Ages, it has one of the loveliest Gothic cathedrals in Germany.

Meissonier, Jean Louis Ernest, French painter, 6-2082

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Napoleon at the head of his troops (gravure), 6-2212

Mekong, or Cambodia. Great Asiatic river, though generally too rapid for navigation. Rising in Tibet, it flows past Saigon, Cochin China, into the China Sea, 2,800 miles.

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Membrane. A thin soft layer or sheath of animal or vegetable tissue. Animal membranes are of three kinds: mucous, lining the cavities communicating externally with the skin, as the mouth and the intestinal canal; serous, lining visceral cavities, as the pleura and the joint cavities; fibrous, as the sheaths of tendons and bones.

Memel. Port of Lithuania, exporting grain, flax, timber, linseed and fish.

Memling, Hans, Flemish painter, 4-1225

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Memphis. Chief commercial city of Tennessee, on the Mississippi, with an active trade in cotton, lumber, live stock and hardwood.

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Menkaura (or Mencheres), king of Egypt, 3-815

Mennonites. A small denomination of evangelical Christians called after Menno Simons (1492-1559) of Friesland. Their creed contains the usual evangelical doctrines. They reject infant baptism, accept only offices connected with the management of schools, intermarry only with members of the faith, and do not resist violence.

Menopoma, animal. *Picture*, 15-5457

Mens sana in corpore sano. Latin for "a sound mind in a sound body."

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Mentone. Health resort on the French Riviera, among orange and lemon groves.

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and note

Mercator (1512-94). A Flemish geographer who did much work for the Emperor Charles V during his campaigns. Famous for his projection, used in nautical maps, in which the meridians are represented by parallel lines and the parallels of latitude cut the meridians at right angles.

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Mercury arc lamp. Electric lamp in which light comes from an arc formed in mercury vapor in a vacuum tube.

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- Merida,** Capital of Yucatan, Mexico, 24 miles from the port of Progreso. Founded in 1542, it has a 16th-century cathedral, while near by are remarkable ruins of the Maya civilization.
- Merida,** Spanish city in the province of Badajoz, famous for its Roman remains, including a bridge of Trajan, 2,575 feet long.
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- Mersey.** River of Lancashire and Cheshire on which stand Liverpool and Birkenhead, besides Stockport, Warrington, Widnes, Runcorn, Wallasey, Bootle and New Brighton. Flows from the Peak of Derbyshire into the Irish Sea.
- Mertz, Xavier,** antarctic explorer, 14-5094
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- Mesdag, Hendrik Willem,** Dutch painter and collector, 8-2854
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- Meshed.** Moslem holy city in northeast Persia.
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- Mesozoic age,** geological era, 2-634
- Mesquite.** A low-growing tufted grass occurring upon the ranges in the West and Southwest of the United States. It makes excellent fodder and is valuable for grazing.
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- Messiah,** oratorio by Handel, 19-6914, 7072
- Messina, Antonello da,** see Antonello da Messina
- Messina.** Third city of Sicily, with manufactures of muslin, linen and silk, and a considerable export trade. A great part of the city, including the ancient cathedral, was destroyed in the earthquake of 1908.
- Mestrovic, Ivan,** Jugo-Slavic sculptor, 13-4858
- Metallurgy.** The art or science of preparing metals for use from their ores by separating them from mechanical mixture and chemical combination. Includes smelting, amalgamation, refining, etc.
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- Metamorphosis,** of insects, 17-6066
- Metaphor.** A figure of speech whereby a word or phrase denoting one kind of idea is applied to another by way of suggesting a likeness between them: a shower of blessings; the message wing d its way.
- Metaphysics.** A branch of philosophy which treats of ultimate reality. There has been much difference of opinion among thinkers as to the scope of the subject, but most agree upon its investigations as to the nature of being.
- Metaurus, Battle of the.** Fought in 207 B.C. in the Second Punic War at the Metaurus River in Umbria. The Romans defeated the Carthaginian army which Hasdrubal was bringing to the aid of his brother Hannibal.
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- Metchnikoff, Elias,** scientist
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- Meteorograph.** Device for recording on one sheet various meteorological readings, such as air pressure, wind pressure and temperature.
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- Metsys, Quentin,** see Matsys, Quentin
- Metternich, Clemens Wenzel Nepomuk Lothar, Prince (1733-1859).** An eminent Austrian statesman who guided the fortunes of his country during the Napoleonic Wars, and after the Congress of Vienna became the leading statesman of Europe. He stood for all that was reactionary in the period that followed until the revolutions of 1848 forced him to take refuge in England. He returned, but not to take office.
- Metz, Alsace-Lorraine,** note and picture, 10-3438
- Metz, Battle of,** 11-3072
- Meum et tuum.** Latin for "mine and thine."
- Mennier, Constantn,** Belgian sculptor, 13-4858
- Meuse.** River of France, Belgium and Holland draining nearly 13,000 square miles. It rises in the Langres plateau and passes Verdun, Sedan, Dinant, Namur and Liège, joining the Rhine at Gorcum. The region through which the Meuse runs was a noted battle-ground during the World War. 500 miles.
- Mexican War, 1846-48, 6-1918, 1920; 19-7138**
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- Mexico.** Southern republic of North America; area, 770,000 square miles; capital, Mexico City. The climate and vegetation vary widely, the low-lying coastal regions being tropical and unhealthy, while the central plateau is generally dry and pleasant. The mineral and agricultural resources are very great, silver-mining, especially, having been important since the 16th century; of late years there has been an immense production of petroleum. Iron, copper, lead, zinc, sulphur, quicksilver, platinum and salt are found, and vegetable products include medicinal plants, indiarubber, dyewoods, fruit, sisal, sugar, coffee, cocoa, rice, indigo, cotton, corn and tobacco. Guadalajara, Puebla, San Luis Potosi and Monterey are important towns; Vera Cruz and Tampico are ports. Once the seat of the Toltec and Aztec civilizations, Mexico was conquered by Cortes in 1519, remaining Spanish up to 1821.

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Mexico City, Capital of Mexico, founded by
 Cortes in 1521 on the site of the Aztec capital,
 Tenochtitlan. In a beautiful valley of a lofty
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 buildings, including the 16th-century cathedral.
 Textiles and cigarettes are manufactured.
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Mica. An important rock-forming mineral
 found in thin sheets or flakes. In large sheets
 it is valuable for use in place of glass as,
 in thin layers, it is transparent. Ground mica is
 used as a lubricant and in making fireproof
 paint. Mica is used in quantity as an insulator
 in electrical work. White mica is called mus-
 covite; light brown mica is called phlogopite,
 and dark brown or black mica is called biotite.
 The province of Quebec contributes most of the
 world's mica.
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Michigan. State bordering the Great Lakes;
 area, 57,980 square miles; capital, Lansing;
 largest city, Detroit. Iron, copper and coal are
 its chief mineral products; agriculture, lumber-
 ing and grazing are important. Automobile
 manufacturing is the most important industry,
 but there are many others. Abbreviation,
 Mich. Nickname, "Wolverine State" or "Auto
 State." Flower, apple blossom. Motto, "Si
 quereris peninsula, amoniam circumspice" (If

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thou seekest a beautiful peninsula, behold it
 here). The name Michigan is an Indian word
 meaning "big lake." First settlement, Sault
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Michigan, Lake. One of the Great Lakes, the
 only one lying entirely within the United States.
 307 miles long and 118 miles broad, it covers
 22,400 square miles, its northern half being
 covered with ice in winter. A huge shipping
 trade is done in summer by the cities of Chicago
 and Milwaukee on its western shore. It is the
 third largest fresh-water lake in the world.
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Micrometer. An instrument used with a tele-
 scope for measuring minute distances, or the
 apparent diameter of objects which subtend
 minute angles.
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Middle Ages. A term indefinitely applied to the
 period between the fall of the Roman Empire
 and the Renaissance, that is, from the 6th to
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- Mildenhall, Sir John**, ambassador to India, 8-2823
- Mildew**. A term used to cover a number of plant diseases caused by fungus parasites, as well as spots or discolorations caused by microscopic fungi on manufactured articles like leather, paper, cloth. In America mildews have been divided into two classes: true or powdery mildews (of which there are 150 species), such as rose mildew, apple mildew, bean mildew, etc.; and downy mildews, such as potato rot, lima-bean mildew, etc. Spraying with Bordeaux mixture or some other reliable fungicide is the great preventive.
- Mile**, measure of distance
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- Milfoil**, see Yarrow
- Militia**. Citizens enrolled as a military force for instruction, drill and discipline, but called upon for service only in times of emergency. In England they are called the *special reserve*; in Germany the *Landsturm* and *Landwehr*.
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- Millennium**. A period of 1,000 years. The term, which comes from the Latin, has special reference to the idea of Christ's reign on earth, but is also used in the general sense of a long period.
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- Milwaukee**. City in eastern Wisconsin, on the west shore of Lake Michigan, a very attractive city. Important both as a collecting and distributing centre, and for its manufacturing enterprise. It has access to farm, mine and forest resources. The name is Indian, its old form, *Milwacky*.
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- Mineral oil**, see Petroleum
- Mineral water**. Any natural water so impregnated with so much or saline substances that it has a particular flavor or a medicinal effect.
- Mineral wool**. A fibrous wool-like material, not unlike spun glass, which is made by blowing a

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powerful jet of air or steam through melted slag; used as a packing for steam pipes, as it is a poor conductor of heat.
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- Miniatures**, small portraits
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- Minim**, Unit of liquid measurement in apothecary's or wine measure.
- Minivet**, bird
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- Mink**, animal, 3-873
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- Minneapolis**, largest city of Minnesota, situated on the Mississippi River at the Falls of St. Anthony in a popular lake region. The power obtained from the falls, and the grain and timber of the Northwest have made it the foremost city of the region, and the largest flour and lumber market in the world.
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- Minnesota**, American North Central state containing the sources of the Mississippi; area, 84,682 square miles; capital, St. Paul; largest city, Minneapolis. It is a great grain, dairy and lumber state. St. Paul on the Mississippi and Duluth on Lake Superior are great shipping centres. Iron-mining, flour-milling and meat-packing are important industries. Abbreviation, Minn. Nickname, "Gopher State." Flower, moccasin flower. Motto, "Etoile du Nord" (Star of the North). The name of the state comes from a Sioux word meaning "sky-blue water." First settlement, Fort Snelling, 1819.
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- Minnesota River**, American river, rising in Big Stone Lake, South Dakota. Flows into the Mississippi River. 475 miles.
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- Minorca**, Second largest of the Spanish Balearic Islands; area, 290 square miles; capital, Port Mahon.
- Minos**, judge of the dead, 9-3238
- Minos**, king of Crete
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- Minotaur**, legend of
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- Minsk**, Chief city of White Russia, trading in flax, hemp, corn, timber and leather.
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- Mint**, A place where money is coined by public authority. The term is derived from Moneta, a surname of Juno, in whose temple at Rome money was coined.
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Mississippi. Fertile American Southern state, producing much cotton, lumber, fruit and grain; cotton-seed products are important; area, 46,865 square miles; capital, Jackson; largest city, Meridian. Abbreviation, Miss. Nickname, "Bayou State." Flower, magnolia. Motto, "Virtute et armis" (By valor and arms). The state's name is derived from two Indian words, *masi*, fish, and *sipu*, river. First settlement, Biloxi, 1699.

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Mississippi Scheme or Bubble (1716-20). Financial scheme proposed by John Law, which included sole trading rights on the banks of the Mississippi. Its object was to restore French credit, but it almost brought France to ruin.

Mississippi Valley, claimed by French, 3-778

Missouri. Rich Central state; area, 69,420 square miles; capital, Jefferson City; largest city, St. Louis. Coal-fields cover many thousand square miles; lead, copper and zinc mines are important, while great quantities of grain and fruit are produced and cattle and mule breeding are important. Manufactures are large and varied. Abbreviation, Mo. Nicknames, "Ozark State," "Iron Mountain State" or "Show Me State." Flower, hawthorn. Motto, "Salus populi suprema lex esto" (Welfare of the people is the supreme law). The word Missouri was taken from a Sioux tribe of that name. First settlement, Fort Orleans, 1719.

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Missouri Coteau, hills in Canada, 1-112

Missouri Falls, Montana, 90 feet high.

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Missouri River. Greatest tributary of the Mississippi, which it joins near St. Louis. Omaha, St. Joseph, Kansas City and Jefferson stand on it, 2,950 miles.

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Modena. Ancient city of northern Italy, with a university and a splendid Romanesque cathedral. The Este Palace contains a fine library and art collection.

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Mohair. A fine fabric made from the hair of the Angora goat. It is light, smooth, dust-shedding and lustrous. Mohair is used in the manufacture of many fabrics, such as plushes, astrakhans and camel's hair.

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Moltke, Count Hellmuth Karl Bernhard von.

Prussian general; born, Parchim, Mecklenburg-Schwerin, 1800; died, Berlin, 1891; strategist of the wars of 1864, 1866 and 1870.

Moltke, Helmuth von (1848-1916). Chief of the German general military staff at the beginning of the World War, and responsible for the general conduct of German operations in the invasion of Belgium and the advance upon Paris.

In October, 1914, he became ill and was superseded at the front by General von Falkenhayn.

In Berlin he organized the reserves, but died suddenly in 1916.

Moluccas. Dutch East Indian archipelago, including Amboyna and Ternate islands. Occupied by the Dutch in 1613, they have ever since been a great centre of the clove and nutmeg trade. Area, 30,000 square miles.

Mombasa, Kenya Colony, 9-3054

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Momentum. The force of motion acquired by a moving body as a result of the continuance of its motion.

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Monaco. Riviera principality under French protection. Area, 8 square miles. It consists of the towns of Monaco, Monte Carlo and La Condamine.

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Monastir, or Bitolia. Picturesque Jugoslav city in Macedonia, manufacturing carpets.

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Mongolian races. One of the main divisions of mankind. They are mostly found in Asia, and the Manchus are a typical race. The Mongolic type is characterized by a yellowish skin, broad, flat features with prominent cheek-bones, broad skulls, almond-shaped eyes, and black, lank and coarse hair. They are subdivided into Northern, Southern and Oceanic Mongols.

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Monongahela River. American river, formed by West Fork and Tygart's Valley rivers, West Virginia. Joins the Allegheny River at Pittsburgh to form Ohio River. 300 miles.

Monoplanes, *see* Airplanes

Monopoly. The exclusive control of the supply of any commodity in a market. Monopolies are illegal to-day, though formerly the state used to grant these exclusive privileges of trade in certain articles.

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Monrovia. Liberian capital and port, exporting nuts and dyewoods.

Mons. Belgian manufacturing and coal-mining centre, famous for its lovely Gothic church of St. Waudru. A centre of fighting during the World War. On November 11, 1918, the Canadian troops entered the city of Mons in triumph.

Monsoon, a wind that blows constantly in the Indian Ocean and across Southern Asia but that alternates its direction, in winter moving from the northeast, in summer from the southwest.

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Mont Blanc. Highest mountain in Alps, on the border of Italy and France. Though the limit of

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the snow line is 8,600 feet, ascents are now made practically every day during the summer, the first having been achieved in 1786. Beneath it is the Mer-de-Glace glacier, 15,780 feet.

Picture, 7-2317

Mont Cenis Pass. Highway between France and Italy over the Graian Alps. Beneath the Col de Fréjus a tunnel has been driven, carrying an electric railway between Modane and Bardonecchia, 6,900 feet.

Mont Royal, site of Montreal named by Cartier, 2-678

Mont Saint Michel, France. *Picture*, 11-3815

Montague House, beginning of British Museum, 12-4358

Montagues

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Picture, portrait, 18-6559

Montana. Large American Northwestern state; area, 146,997 square miles; capital, Helena; largest city, Butte. Containing much of the Rocky Mountain system and part of the Bad Lands, it used to be generally too dry for cultivation, but since irrigation has been carried out agriculture has become important, but stock-raising and mining are the leading industries. Copper, coal, silver and other minerals are abundant. Abbreviation, Mont. Nickname, "Stub-Toe State" or "Bonanza State." Flower, bitter root. Motto, "Oro y plata" (Gold and silver). The name comes from a Spanish word meaning "mountainous." First settlement thought to have been at Helena about 1861. described in Western States, 18-6425-36; 19-6841-50

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Savenac nursery, Lolo national forest, 8-2810

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Montauban. French cathedral city on the Tarn, famous as a Huguenot stronghold in the 16th and 17th centuries.

Montcalm, Louis Joseph, Marquis de death of, 3-784

in Canada, in war against English, 2-683

Monte Rosa. After Mont Blanc the highest mountain in the Pennine Alps. 15,217 feet.

Montefiore, Sir Moses, philanthropist, note and picture, 19-7161

Montemayor, Jorge de, Spanish author, 19-7130

Montenard, Frédéric, French painter, 8-2856

Picture, Pastoral Scene, 8-2857

Montenegro. Formerly a tiny independent kingdom, but since 1918 part of Jugo-Slavia. Its name means "Black Mountain," and it consists of a wild mountain region, peopled by a brave and hardy Serbian race. After the defeat of the Serbians by the Turks at Kossovo in 1389, the Montenegrins retired to their mountains and carried on the war against the Turks almost incessantly up to 1912, being the only Balkan people who preserved their independence.

after the World War, 17-6346

Monteregian Hills, Quebec, 1-108

Monterey. Cathedral city of northeast Mexico, in an agricultural and mining region.

Monterey, Battle of. An engagement between the United States forces under General Taylor and the Mexicans under General Ampudia in 1846. After suffering three days' attack upon their city, the Mexicans sued for peace and were allowed to evacuate, and an eight weeks' armistice followed, 6-1920

Montesquien, Baron Charles de. French critical writer; born near Bordeaux, 1689; died, Paris, 1755. *Picture*, portrait, 18-6713

Monteverde, Italian musical composer, 19-6903

Montevideo, Uruguay. *Pictures*, 19-6981

Montezuma II. Aztec ruler, 1-244; 19-7132

Montfort, Simon de. English statesman, patriot and general; born about 1208; killed at the battle of Evesham, 1265; called first model parliament in England.

Montfort, Simon de (continued)

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Picture, Riding into Rochester cathedral, 5-1573

Montgolfier, Jacques Etienne. French inventor; born near Lyons, 1745; died, Servières, 1799; inventor with his brother Joseph Montgolfier of first balloon.

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Montgomery, James, hymn-writer

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Montgomery, Richard

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Montgomery. Capital of the State of Alabama, 180 miles northeast of Mobile, is a large inland cotton market and is the distributing point for manufactured products. It was the temporary capital of the Confederacy.

Month, definition of, 11-4132

Monticello, home of Thomas Jefferson

Picture, with note, 12-5829

Montmorency Falls. Waterfalls in the province of Quebec, Canada; 265 feet high.

Picture, 3-775

Montpelier. Capital of the State of Vermont, on the Winooski River. The principal industries are granite working and the manufacture of saddlery, hardware, clothespins, crackers, patent medicines and machinery. The surrounding region is largely agricultural.

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Montserrat. British West Indian island in the Leeward group; area, 32 square miles; capital, Plymouth. Fertile and beautiful, it exports cotton and limes.

products, 9-3191

Moodie, Mrs. Susanna, Canadian author,

14-5105-06

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- Morocco**. North African sultanate; area about 231,000 square miles; capitals, Morocco, or Marrakesh, Fez, Meknes and Rabat. Rapidly growing in prosperity, the French protectorate produces barley, oranges, figs, lemons, dates and almonds; and lead, silver, gold and antimony are mined. Casablanca, Rabat and Mogador are the chief ports. Spanish Morocco is a zone of about 11,000 square miles, containing Tetuan, the capital, Melilla, and the wild Rif country; Tangier is an international port. Morocco was independent up to 1912, when it became a French protectorate.
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- Morphine** (C₁₇H₁₉O₃N). The principal alkaloid of opium and a bitter, white, crystalline base. Found sometimes in other plants besides the opium poppy, the wild hops. Used as an anodyne and to induce sleep.
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- Mortgage**. A conveyance of property, upon condition, as security for the payment of a debt. It is extinguished by payment of the indebtedness on the day when due.
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- Moselle**. River of France and Germany, rising in the Vosges and joining the Rhine at Coblenz. It passes Nancy, Metz and Treves. In its lower valley it runs past vine-clad hills which produce the celebrated Moselle wines. 320 miles.
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Mound-builders. Primitive peoples who have erected mounds at some stage of their development. In North America mounds have been found in the Ohio and Mississippi valleys. They are generally of earth and filled with skeletons and ceremonial objects buried with the dead.
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| Godwin-Austen (K2 or Dapsang), Karakoram..... | 28,250 |
| Kinchinunga I, Himalayas..... | 28,146 |
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| Dhaulagiri, Himalayas..... | 26,795 |
| Nanga-Parbat, Himalayas..... | 26,620 |
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| Tirach Mir, Afghanistan..... | 25,400 |
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- Mucilage**. A name applied to jelly-like preparations or watery solutions of vegetable gums. There is mucilage exuding in solid form from plants such as gum arabic, and a solution made by extracting plants such as marshmallow.
- Mucous membrane**, description, 6-1931
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- Muezzin**. In Mohammedan countries, the name of one who calls the faithful to prayer from the side of a mosque or its minaret. It is considered a meritorious office insuring admission into Paradise.
- Mugwump**. Name given originally in the United States to independent voters refusing to support the policy of either political party. The word is of Indian origin and means "great chief." It was formerly applied in a disparaging sense.
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- Mukden**. Capital and trading centre of Manchuria.
- Mukden, Battle of**, Russo-Japanese War, 2-566
- Mulatto**. A person of mixed Caucasian and negro blood, or Indian and negro blood, usually of a brownish yellow complexion.
- Mulberry**. A tree of the Moraceae family thriving in temperate and warm climates. The common, or black, mulberry, a native of Asia and common in Europe, is seldom seen in North America except in the South and in California. The white mulberry is more common but less palatable. The red mulberry, a native of Eastern North America, is the largest, has deep red fruit and valuable wood.
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- Mumford (or Mulford)**, wife of John Eliot, 18-6635
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- Mumps**. A popular name for an inflammation of the parotid, and sometimes of the other salivary glands. It is infectious and contagious, and attacks chiefly children. Stiffness about the jaws is followed by pains and swelling beneath the ear, generally first on one side and then on the other, lasting from eight to ten days. Treatment consists mainly in protecting the affected parts from cold.
- Muncaczy**, *see* Munkácsy
- Munchausen, Baron**
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- Munich**. Capital of Bavaria, and fifth largest German city. A very handsome place, it is noted for its university, its splendid art collections and its huge 15th-century cathedral. There are large brewing, foundry, stained-glass and optical-instrument industries.
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- Municipal Government**. The self-government of a town, city or village. It includes all the activities of the municipality: the public utilities, including ways of transportation and communication, supplying of light and water; disposal of waste matter; protection of property, health, life; education; recreation; charities and correction; and municipal housing. There are in America four varieties of municipal executives; in some cities the mayor is given complete charge of all administrative work, the council being ousted from any share in it, as in Boston and New York. In other cities the mayor is given a limited range of power, the council retaining a hold upon him, as in Chicago, Philadelphia and Los Angeles. Third, there is the Commission plan of government wherein the administrative functions are divided among five commissioners, as in Buffalo and St. Paul. Lastly, there is the arrangement by which the supervision of the city's administrative work is given to a manager whom the council appoints and to whom he is responsible. This is called the city-manager plan.
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- Münster**. Ancient and picturesque German cathedral city in Westphalia.
- Munster**. Southwestern Irish province, comprising Cork, Clare, Kerry, Waterford, Limerick and Tipperary; area, 9,320 square miles.
- Muntjac**, animal, 4-1417
- Muntz, Laura**, Canadian painter, 10-3704
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- Mural painting**, *see* Painting—mural
- Murcia**. Picturesque old Moorish city in south-east Spain, among orange groves and fruit gardens. It has a fine cathedral and some manufactures.
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- Muriatic acid, or hydrochloric acid (HCl)**. A caseous compound of hydrogen and chlorine whose aqueous solution is used extensively in dyeing, in making coal-tar colors, and in preparing the chlorid of different metals. Colorless in its pungent odor and taste, and soluble in water, it is the strongest acid known.
- Murillo, Bartolomé Estéban**, Spanish painter, 4-1500

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- Murray River**. Largest Australian river, draining 250,000 square miles. Rising in the Australian Alps, it flows into the Great Australian Bight, in South Australia, forming the boundary between New South Wales and Victoria for most of its course. With its Murrumbidgee, Lachlan and Darling tributaries it forms an immense river system. 1,120 miles.
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- Myopia**, or **shortsightedness**. The rays from distant objects are brought to a focus before they reach the retina of the eye and form an indistinct image, and the rays from very near objects converge so as to produce a distinct image. Corrected by the use of a concave lens.
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- Nablus**. Ancient capital of Samaria, Palestine.
- Nabonidus**, king of Babylon, 2-660
- Nabopolassar**, king of Babylonia, 2-658-59; 3-912; 18-6672
- Nadaud, Gustave**, song-writer, 10-3612
- Nævius**, early Roman author, 16-5908
- Nagana**, disease of animals, 17-6422
- Nagasaki**. Port of Kiushiu, Japan, with large shipyards. It is an important coaling station. Up to 1859 it was the only Japanese port open to Europeans.
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- Nagoya**. Capital of Owari, Japan. It is noted for its pottery trade and manufacture of cotton and silk.
- Nagpur**. Capital of Central Provinces, India, trading in cotton; also noted for oranges.
- Nagpur**. Division of the Central Provinces, India.
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- Nalbandian**, see **Poetry Index** for poem and note
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- Namur**. Historic Belgian cathedral city at the junction of the Sambre and Meuse. It is an important industrial centre, with iron and brass foundries, and the manufacture of cutlery. It was captured by the Germans in August, 1914.
- Nanaimo**. Port on Vancouver Island, Canada, with lumber and fish-curing industries; also a coal-mining centre.

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- Nancy.** Beautiful French city on the Meurthe, with a famous embroidery industry. Its many fine buildings include a cathedral and the old ducal palace of Lorraine. Nancy has a university and a noted school of forestry. cotton and metal works, 11-3818
- Nancy School** of hypnotism, 12-4444
- Nandid,** fish
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- Nanking.** Ancient Chinese city on the Yang-tse-kiang, once famous as a literary and as a manufacturing centre.
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- Nantes.** One of the most important ports of France, on the Loire. A fine modern city, it has many ancient buildings, including the cathedral and old ducal castle of Brittany; in the cathedral is Colombe's splendid monument to the last duke and duchess. There is a large government steam-engine works.
- Nantes, Edict of,** allowed freedom of religion, 10-3436
- Naphtha.** One of the products obtained from petroleum, is a volatile, colorless liquid, holding a place between gasoline and benzine. It may also be obtained in the distillation of wood and coal-tar. Industrially naphtha is used in the manufacture of cleaning compounds, paints and varnishes, rubber goods, etc.
- Napier, David,** and early steamboat, 17-6402
- Napier, John.** Scottish mathematician, inventor of logarithms; born, Merchiston, Edinburgh, 1550; died there, 1617.
- Naples.** Largest city and seaport of Italy, and one of the most beautifully situated in Europe. Founded by the Greeks as Neapolis, Naples generally is crowded, dirty and picturesque, though of late years much has been done to modernize it. There is a busy export trade, while fishing and the manufacture of textiles, pottery, gloves, soap and perfumery are carried on. The cathedral of St. Januarius dates from the 13th century, and the National Museum is rich in archaeological treasures from Pompeii.
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- Narbada.** River of the Indian Deccan, rising in the Satpura Mountains and flowing into the Gulf of Cambay. It is one of the most sacred rivers of India. 800 miles.
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- Narbonne.** Earliest Roman colony beyond the Alps, having been founded as Narbo in 116 B.C. It stands on the Canal du Midi in Languedoc, France, and is famous for its honey, its uncompleted 13th-century cathedral, and other relics.
- Narcissus,** character in mythology, 9-3237
- Narcissus,** plant, 19-7172
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- Narcotic.** One of several drugs which numb the senses, dulling their susceptibility, reducing pain and bringing on sleep. Too large a dose will produce stupor or convulsions. Opium and belladonna are familiar narcotics.
- Nares, Sir George,** arctic explorer, 13-4713-14
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- Narkunda,** ship. *Picture,* engine room, 12-4425
- Narva, Battle of.** Fought between Charles XII of Sweden, with about 8,000 men, and the Russians numbering about 40,000, who were besieging this Baltic port (1700). Charles won a big victory, Peter the Great fleeing to Novgorod.
- Narvaez, Panfilo de** (c. 1480-1528). A Spanish soldier who led the second Spanish attempt to colonize Florida in 1528. He perished that year with all but four of his followers.
- Narwhal,** sea-animal, 6-2218; 14-4960
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- Nash, Thomas,** English dramatist, 2-721
- Nashville.** Capital of Tennessee. An important educational and commercial centre, it has four universities and several colleges. Its manufactures are important and its trade extensive.
- Nashville, Battle of,** 7-2440
- Nasmyth, James,** inventor, 19-7206
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- Nassau.** Capital of the British Bahama Islands on New Providence Island.
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- Nast, Thomas,** artist
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- Nasturtium.** The name, coming from the Latin *nasus*, nose, and *tortus*, twisted, refers to the acrid odor and pungent taste. Botanically, a synonym for Rorippa, the Cress Family. Horticulturally it signifies a plant of the genus Tropæolum, familiar in gardens. The latter species bear conspicuous flowers of varying shades of yellow and red.
- Natal.** South African eastern province, including Zululand; area, 35,000 square miles; capital, Pietermaritzburg. The soil is very fertile sugar and other tropical produce being grown near the coast, and fruit and cereals on the uplands. Sheep and cattle are reared, and coal is mined. Durban is the largest port on the east coast of Africa.
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- National Association of Audubon Societies,** 14-5018
- National flowers,** 17-6180-81
- National Gallery,** London, 12-4361
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- National Guard.** In the U. S. a term used in most of the states and territories to denote the organized militia. The Dick Bill of 1903 brought these state forces under Federal supervision for the first time. By the National Defense Act of 1916 the National Guard was brought more nearly into conformity with the requirements and standards of the regular army. The period of enlistment covers six years—three in the active organization and three in the reserve.
- National League,** in baseball, 17-614]
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- National Woman's Suffrage Association,**
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- Nations**
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- Nations, Battle of the, at Leipzig,** 10-3572
- Natural Bridge,** Utah, note and picture, 18-6425
- Natural Bridge,** Va., note and picture, 14-4900
- Natural gas.** The lightest part of crude oil, made up of carbon dioxide, carbon monoxide, marsh gas and other hydrocarbons. It is found in sedimentary rocks, mostly sandstones, sometimes accompanied by petroleum. When it escapes to the air it is colorless, odorless and burns with a luminous flame. In time all the gas in the natural-gas well escapes through the hole made for it, and the well becomes empty and useless. Natural gas is used mostly in oil districts.
- Natural selection,** explanation, 4-1288
- Naturalism in French painting,** 7-2475-80
- Naturalists, famous ones, *** 19-7051-58
- Naturalization.** "The act of investing an alien (one born in another country) with the rights and privileges of a native-born citizen or subject." Most countries now grant naturalization after a term of residence in the country. In the British Empire the general law demands residence under the British flag or service under the British Government for five years out of the eight preceding the application. The last year must be spent in the place where the application is made. Married women take the nationality of their husbands. In the United States the term is continuous residence for at least five years, and the last year must be spent where the application is made. A "declaration of intention" must be filed at least two years before citizenship is granted. A married woman does not take the nationality of her husband. Only white aliens or those of African descent may be naturalized.
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- Nautilus,** mollusc, 19-6892
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- Naval Academy, U. S.,** see Annapolis
- Naval Reserve.** An organization which can be called into active service in time of war to reinforce the regular navy. The Reserve includes volunteers organized and trained for service, some seamen of the merchant marine and some mercantile vessels.
- Navarino, Battle of.** A decisive sea fight in the Greek War of Liberation, which brought about Greek independence. A Turkish and Egyptian fleet of 89 men-of-war was attacked by a British, French and Russian fleet of 24 ships in 1827, and in two hours was completely overwhelmed.
- Navarre, Queen of, Jeanne d'Albret,** 13-4581
- Navigation.** The science or art of directing vessels as they proceed from one place to another. It involves a knowledge of methods of determining locations, of arranging courses, of measuring distances, etc.
- Navy, British,** see England—navy
- Navy of U. S.,** see United States—navy
- Nazareth.** Ancient town in Galilee, Palestine, the home of Jesus. In ancient times it was insignificant, but under its modern name, En Nasira, it had over 7,000 population in 1922, more than half Christians.
- Ne plus ultra.** Latin for "nothing further."
- Neagh, Lough.** Largest lake in the British Isles, in Ulster, Ireland. 150 square miles.
- Neagle, John,** American painter, 9-3330
- Neal, David,** American painter
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- Neale, John Mason,** hymn-writer, 12-4436-37
- Nearsightedness,** explanation of, 10-3686
- Nebo, Mt.** Mountain from which Moses viewed the Promised Land.
- Nebraska.** One of the North Central states; area, 77,520 square miles; capital, Lincoln. Omaha is the largest city. Agriculture, stock-raising, meat-packing are the chief industries. Abbreviation, Nebr. Nickname, "Tree-planter State." State flower, goldenrod. Motto, "Equality before the Law." Nebraska is an Indian word meaning "wide river." First settlement, near Omaha, 1847.
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- Necho II,** king of Egypt
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- Neckar.** German river, one of the chief tributaries of the Rhine, which passes Heidelberg and joins the Rhine at Mannheim. 247 miles.
- Necker, Madame** (Suzanne Curchod), 9-3202-03
- Necklaces**
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- Nectar.** In mythology, the drink with which the Olympian gods were refreshed. It was carried and poured for them by Hebe and Ganymede, the cupbearers of Zeus, and was believed to give to those who drank of it divine vigor and beauty.
- Nectar in flowers,** means for fertilization, 5-1609
- Nectary,** gland in flowers for honey, 2-509
- Née,** French for "born." The expression "Mrs. Smith née Jones" indicates that Jones was Mrs. Smith's name before marriage.
- Needle,** how to float in water, 2-623
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- Needles, The.** Three isolated chalk cliffs forming the westernmost point of the Isle of Wight. On one of them stands a powerful lighthouse.
- Negligence.** In law, failure to take due care such as the law requires to protect the interests of others who may suffer injury through the lack of such care.
- Negotiable paper, or negotiable instruments.** Promissory notes, bills of exchange, checks payable to bearer or to order of the payee, or other transferable evidences of debt, on which the holder may sue in his own name as if it had been made out to him in the first place.
- Negritos.** The name applied to the dwarf Negroes of Africa, the Oceanic Negroes of Malaysia, and certain of the Philippine Islands. The Andaman Islanders, the Samangs, and the Aetas are characteristic races outside Africa, while the Batwa pigmies south of the Congo are typical members of the African group.
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- Nelson River.** Canadian river rising in Lake Winnipeg and emptying into Hudson Bay. 1,660 miles.
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- Nemesia. Picture (grave), 19-7176**
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- Nemophila**
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- Neosho River.** American river rising in Morris County, Kansas; flowing into the Arkansas River. 400 miles.
- Nepal.** Independent state in the Himalayan foothills: area, 54,000 square miles; capital, Khatmandu. The Gurkhas are the ruling race. rebellion against English, **8-2828**
- Nepotism.** From the Latin *nepos*, a nephew, a grandson: favor or patronage bestowed upon members of one's family because of the relationship rather than because of merit
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- Neuchâtel, Lake of.** Largest lake lying entirely within the borders of Switzerland, with an area of 92 square miles.
- Neurosis.** (1) A disease of the nerves that occurs without any noticeable break or change in the nerve structure; (2) some action of a nerve that gives rise to activity of the mind.
- Neutrality.** The state of being neutral, or not taking part on either side of a contest or disagreement.
- Neva.** Russian river which flows from Lake Ladoga and past Leningrad into the Gulf of Finland. 45 miles.
- Nevada.** Western state: area, 110,690 square miles; capital, Carson City. Largest city, Reno. It is mostly arid and barren, but has valuable silver, gold, copper, lead and other mines. Abbreviation, Nev. Nickname, "Sagebrush State." State flower, sagebrush. Motto, "All for our country." Nevada is a Spanish word meaning "snow-clad." First settlement, Genoa, 1850. described in Western States, **18-6425-34**
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New Bedford. Seaport and cotton-manufacturing city in Massachusetts. Formerly a great whaling port.

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New Brunswick. Canadian eastern province; area, 28,000 square miles; capital, Fredericton. It has farming, fishing and lumber industries. St. John is a great port.

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New Caledonia. Chief French Pacific island; area, 7,650 square miles; capital, Noumea. Discovered by Captain Cook in 1774, it became French in 1853. Coffee, fruit, nickel, cobalt and guano are produced.

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New England Confederation. A union of the colonies of Massachusetts Bay, Plymouth, Connecticut and New Haven effected in 1643 for the sake of defense against the Dutch and the Indians and lasting until 1684.

New England Council

successor to Plymouth Company, 2-548

New English Art Club, influence of, 8-2858

New Forest. Woodland district in Hampshire, England, between the Solent, Southampton Water and the Avon. Much of it was afforested by William the Conqueror to provide a new hunting ground, and two of his sons were killed within it, Richard by a stag, and William Rufus by an arrow. There are now few deer but a distinct breed of ponies.

made by William the Conqueror, 4-1439

New France. Name given to the French possession in North America, otherwise known as Canada and Acadia.

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New Hampshire. New England state; area, 9,341 square miles; capital, Concord; largest city, Manchester. Textile-manufacturing, boot- and shoe-making, wood-pulp and quarrying are the leading industries. Abbreviation, N.H. Nickname, "Granite State." State flower, purple lilac. New Hampshire was named after Hampshire, England. First settlement thought to have been made at Dover, about 1623.

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Franconia Notch, 12-4151

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Langdon House, Portsmouth, 12-4154

Peterborough, Colony Hall, 19-6926

New Haven. Largest city and port of Connecticut, with hardware and cutlery industries; site of Yale University.

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New Jersey. Eastern state; area, 8,225 square miles; capital, Trenton. Textiles, particularly silk, automobiles, machinery, phonographs, etc., are manufactured, the chief industrial centres being Jersey City and Newark; the latter is the largest city. Fruits and vegetables are extensively grown. Abbreviation, N. J. Nickname, "Jersey Blue." State flower, violet. Motto, "Liberty and prosperity." New Jersey was named after the island of Jersey. First settlement, Bergen, 1617.

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New Jersey tea, shrub

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New Mexico. Mountainous Southwestern state; area, 122,634 square miles; capital, Santa Fé. Largest city, Albuquerque. Mining and stock-raising are carried on. Dry-farming is important. Abbreviation, N. Mex. Nickname, "Sunshine State" or "Spanish State." State flower, yucca. Motto, "Crescit Eundo." (It grows as it goes). Mexico is an Aztec word which is the title of the Aztec national god. First settlement, Santa Fé, 1598.

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New Orleans. Famous cotton port of Louisiana. Standing about 100 miles from the mouth of the Mississippi, it was founded in 1717 by the French, and still retains some of its French characteristics. The largest commercial city of the South, it has important sugar-refining and manufacturing industries.

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New Quebec, northern section in Canada, description, 7-2557-58

New Salem, Illinois, now a state park

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New South Wales. Oldest Australian state, colonized in 1788; area, 309,432 square miles; capital, Sydney. Here is much of the Australian mountain system, the source of many short streams toward the sea, while an immense area in the interior is watered by the Darling, Lachlan and Murrumbidgee, tributaries of the Murray. The richest part of Australia, New South Wales grows wheat, corn, barley, oats, lucerne, tobacco, sugar, vines and fruit; its vast pastures support millions of sheep and other cattle. Coal is mined at Newcastle and silver at Broken Hill, and tin, copper, lead, antimony and manganese are also found. Sydney, on the magnificent harbor of Port Jackson, is a great commercial and industrial centre and port.

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New Testament. The second of the two great general divisions of the Scriptures.

New Westminster. One of the largest cities on the mainland of British Columbia, near the mouth of the Fraser River. Here are large lumber and salmon-canning industries.

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New York (city). Commercial capital of America, and after London the greatest city and port in the world. Founded as New Amsterdam by the Dutch in 1621. The original city stood on Manhattan Island, between the Hudson and East rivers; but it also includes The Bronx, Staten Island, and the west end of Long Island. The Brooklyn suspension bridge and other bridges connect this part of the city with Manhattan. As a commercial and shipping centre New York is unrivaled in the western hemisphere; its huge skyscraper buildings and fine parks are famous. The population is very cosmopolitan, and includes more Jews and Irish than any other city in the world.

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New York (state). Middle Atlantic state; one of the original 13 states; area, 49,204 square miles. Largest city, New York; capital, Albany. The most populous state in the Union, it has extensive agricultural and mining industries, but manufacturing is easily the greatest. The Hudson and Mohawk rivers and the Erie Canal form a waterway between the Atlantic and the Great Lakes, and among the largest cities are Buffalo, Rochester and Syracuse. Abbreviation, N. Y. Nickname, "Empire State." State flower, rose. Motto, "Excelsior." Named for the Duke of York. First settlement, New York, 1613 or 1614, or else near Albany about the same date.

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Newark, Largest city of New Jersey, manu-

facturing chemicals, jewelry, cutlery, leather,

hardware, clothing and glass.

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Newcastle-upon-Tyne. Coal-mining, industrial

and shipbuilding centre and port, in North-

umberland, England. The chief coal-market of the

world, it has been an important place since the

Middle Ages; there are a cathedral and remains

of a Norman castle and walls.

proverb, "carrying coals to Newcastle," 7-2612

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Newcomen, Thomas, made one of first steam

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Newfoundland, Dominion of. Oldest British

North American colony; area, 155,134 square

miles; capital, St. John's. Discovered by John

Cabot in 1497, and occupied in 1583 by Sir

Humphrey Gilbert, it depends mainly for its

prosperity on its valuable fishing and sealing

grounds, about \$20,000,000 worth of fish being

exported annually. There are iron-ore, timber

and paper industries.

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Newport News. Seaport of Virginia, on Hamp-

ton Roads. It has a fine harbor and one of the

largest shipyards in the world.

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Niagara Falls. Stupendous falls of the Niagara

River, which divides Ontario, Canada, from New

York. The cataract over which 12 million cubic

feet of water flow in a minute, is divided into

two by Goat Island; the Horseshoe Falls on the

Canadian side are 158 feet high, 2,550 feet

across, and the American Falls are 167 feet high

and 1,060 feet across. The force of the water

wears away the edge of the Horseshoe Falls at

the rate of 2½ to 4 feet a year. Electrical

power is generated by diverting the waters of

the falls through tunnels.

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Niall of the Nine Hostages, and St. Patrick,

8-2930

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17-6266

Nicaragua. Republic of Central America; area,

49,200 square miles; capital, Managua. The

most prosperous parts lie toward the Pacific,

the Mosquito Coast on the east being marshy

and unhealthy, though the jungles yield cedar,

gums and medicinal plants. Coffee, hides, fruit

and rubber are the chief exports.

climate and products, 19-7142

rare stamps of, 16-5888

Nice. One of the largest French Riviera towns,

founded by the Greeks as Nicea. The old town

has narrow and picturesque streets; the new

town has splendid boulevards, and is famous as

a health resort.

popular as a resort, 11-3820

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Nickel (Ni). A silvery white metal that does

not tarnish when exposed to the air. It is not

found in a pure state but with cobalt, iron or

arsenic. These ores are smaltite, niccolite and

millerite. Canada, in the Sudbury region, pro-

duces four-fifths of the world's supply of nickel.

Nicol, J. Watson, artist

Picture. Meeting between Rob Roy and Bailie

Nicol Jarvie, 7-2629

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- Nicolls, Richard** (1624-72). A British soldier and colonial governor in North America. In 1664, in command of an English fleet, he took New Amsterdam and called it New York.
- Nicosia**, capital of Cyprus, 9-3182
- Nicotine** ($C_{10}H_{14}N_2$). A volatile and poisonous alkaloid obtained from tobacco, of which it is the base. The liquid it forms is clear, colorless and oily. In combination with acids it produces pungent and acrid salts.
- Niehaus, Charles H.**, American sculptor, 14-4939
- Niemen**, River rising near Minsk, Russia, and flowing past Grodno, Kovno, capital of Lithuania, and Tilsit into the Baltic. 500 miles.
- Niepce, Joseph Nicéphore**, French inventor; born, Chalon-sur-Saône, 1765; died near there, 1833; co-operated with Daguerre in the invention of photography.
- Niepotomice**, Poland, memorial mound at, 13-4690
- Nietzsche, Friedrich Wilhelm**, German philosopher, 17-6415
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- Niger**, Great African river in the French Sudan and Nigeria. Rising on the border of Sierra Leone, it flows into the Gulf of Guinea. Timbuctoo stands on its upper course. 2,600 miles. a river of the future, 18-6806
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- Nightshade Family**, in *Botany*, 13-4875
- Nihilism**. Violent political creed started in the 19th century and very popular in Russia, where Nihilists assassinated, among others, the Tsar Alexander II in 1881.
- Niihan**, one of Hawaiian Islands, 15-5448
- Nijni-Novgorod**. Russian commercial city on the Volga, famous for its fairs.
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- Nike**, Greek goddess of victory, 9-3234
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- Nikko**, Japan, description, 2-570
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stone figures of Buddha, 2-569
- Nikosthenes**, painter of Greek vases, 2-451
- Nil desperandum**. Latin for "never despair."
- Nile**. Longest African river, draining 1,100,000 square miles. Rising in Lake Victoria Nyanza, it flows through the Sudan and Egypt into the Mediterranean, which it enters through a wide delta. Its value to Egypt is immense, for its summer flood annually fertilizes a vast area of land. Surplus water is conserved for irrigation by the Assouan Dam, and a still larger dam is being built on the Blue Nile at Sennar in the Sudan. When the Nile is high, it is navigable up to Gondokoro, 2,900 miles from its mouth, but otherwise six cataracts prevent navigation between Assouan and Khartoum. The Bahr el Ghazal, Blue Nile and Atbara are its chief tributaries; Khartoum, Omdurman, Wadi Halfa, Assouan, Assiout, Cairo, Jamietta and Rosetta stand on its banks. 3,473 miles.
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- Nilgai**, animal, 4-1444
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- Nimbus clouds**. *Pictures*, with note, 8-2927
- Nimes**. Ancient cathedral city of Languedoc, France, famous for its Roman remains. Its chief ancient monuments are a mausoleum, baths, two gateways and an amphitheatre to seat 20,000 spectators; close by is the Pont du Gard, the most perfect existing Roman aqueduct. Nimes manufactures silk and cotton goods, boots, carpets and shawls.
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- Nimes, Temple of**. *Picture*, 8-2610
- Nimrod**. Son of Cush and grandson of Ham. Noah's second son, mentioned in Genesis x, 8-10 as a powerful king and "a mighty hunter before the Lord." Among the cities he ruled were Babel, Erech, Accad and Calneh, "in the land of Shinar," which we know better as Babylonia. When we speak of anyone now as a Nimrod we refer to his prowess in hunting.
- Nimrod**, ship, in antarctic exploration, 14-5093
- Nimrud**, modern name for Calah, 2-646, 659
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- Ninebark**, note and picture, 15-5307
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- Ningpo**. Great port of central China, on the Yung. Famous for its temples, pagodas, stone bridges, library and gold and silver work.
- Ninnis, Lieutenant**, antarctic explorer, 14-5094
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- Nipigon Lake.** In the province of Ontario, Canada. 1,730 square miles in area.
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- Nipple-wort,** flower
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- Nirvana** and Buddhism, 9-3086
- Nithsdale, William Maxwell, 5th earl of,** escape from Tower of London, 12-4225
- Nitrates.** The salts of nitric acid. Some nitrates are used for medicinal purposes. Some are used in the manufacture of indelible ink, some in fireworks and some in photography. Nitrate of soda (sodium nitrate) is valuable as a fertilizer, restoring nitrogen to the soil.
chemical manufacture and use, 13-4530
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- Nitric acid (HNO₃).** An acid obtained by the distillation of sulphuric acid and sodium nitrate mixed together. In a pure state it is a colorless liquid with a strong and unpleasant smell and a corrosive effect on animal and vegetable matter. It is a powerful oxidizing agent. In nature it is found in combination with potash, soda, lime and magnesia. In the arts it is known as aqua fortis, and is used for etching on copper and steel. Industrially it is used in making coal-tar dyes, explosives, etc.
- Nitrogen**
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- Nitrogen peroxid,** in air at seaside, 6-2252
- Nitroglycerine;** more properly, **glyceryl trinitrate (C₃H₅(NO₃)₃).** A liquid, heavy, oily and highly explosive, in a pure state colorless; produced by the action of a mixture of nitric and sulphuric acids upon glycerine. Though in the open it burns quietly, under percussion or when heated in a closed vessel it explodes, setting free gas of about 10,000 times its own volume. Combined with a clay it makes dynamite for blasting; poured upon cotton, guncotton for ammunition, etc.
use in drilling oil wells, 13-4541
- Nitrous oxid (N₂O).** A gas, colorless, transparent, slightly sweet of taste and odor. It is more generally known as laughing gas, a name formerly given because of its effect upon behavior and facial expression when inhaled in small quantities. Larger quantities cause unconsciousness and insensibility to pain.
as anæsthetic, 8-2729
- Noah.** A patriarch of Bible times, whose life story is told in Genesis v. 28-x. In the great Deluge he saved his family and many animals (two of each kind) in the ark which he had built at the direction of God.
- Nobel, Alfred,** and Nobel Prize, 17-6288
- Nobel Prize**
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- Nobile, Umberto.** Italian navigator, airship constructor and fier. Born, Italy, 1885. Built the Norge and was one of the leaders in the Amundsen-Ellsworth-Nobile successful trans-polar flight, May, 1926. See Norge.
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- Nobility, The.** Nobles or titled persons in a state taken together as a body; in Great Britain and Ireland the peerage.
- Nocturnes,** Roman fire officials, 9-3157
- Noddies,** birds, 11-4122; 14-5017-18
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Why does a noise occasionally break a window? 7-2611
- Noises—Questions about (continued)**
Why does a stick make a noise when swung in the air? 12-4281
Why does furniture make a noise at night? 9-3100
- Nolens volens.** Latin for "unwilling or willing"; in English, willy-nilly.
- Nom de guerre.** French for "war name"; assumed name.
- Nombre de Dios,** on Isthmus of Panama
Sir Francis Drake's attack on, 14-4963
- Nome, Alaska**
epidemic, and bravery of Balto, 16-5735
gold mines, discovery, 10-3534
- Non compos mentis.** Latin for "not of sound mind."
- Non-intercourse Act.** An act passed in 1809 by the U. S. Congress in requital of certain claims that had been made by France and Great Britain and that affected the commerce of the U. S. and the rights of U. S. seamen. By this act French and British merchant vessels were prohibited from entering U. S. ports, and goods grown in the two countries were excluded from importation.
- Non-partisan League.** A league formed among the farmers of North Dakota in 1915, and now recognized as a strong political influence in that state, South Dakota, Minnesota and other North-western states. The measures it advocates include state ownership of banks, mills, grain elevators, etc.
- Nonconformists,** given civic rights in England, 7-2298
- Nonpareil,** bird, description, 14-5024
- Nordcaper,** kind of whale, 6-2216
- Nordenskiöld, Nils A. E., Baron,** arctic explorer, 8-2988; 13-4712
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- Nordenskiöld, Otto,** antarctic explorer, 14-5094
- Nordic races.** A branch of the white race in Northern Europe. They are tall, red- or yellow-haired, their eyes gray-green or blue-gray, and long-headed. The Scandinavians to-day and the ancient Goths are typical Nordic peoples.
present status, 15-5291
- Norfolk.** English eastern county; area, 2,054 square miles; capital, Norwich. Here are Yarmouth, King's Lynn and Thetford, the watering-places of Cromer and Hunstanton, the Broads, and the mouth of the Ouse; fishing and agriculture are important.
- Norfolk.** Port of Virginia, on an arm of Chesapeake Bay. Lumber, fruit, grain and cotton are the principal exports.
- Norfolk Island.** British Pacific island, about 400 miles from New Zealand. The descendants of the Bounty mutineers were brought here from Pitcairn in 1856.
- Norge.** The airship of the Amundsen-Ellsworth-Nobile expedition which sailed from Spitzbergen across the North Pole to Alaska in 71 hours. The Pole was crossed in the early morning, May 12, 1926. The Norge which was constructed in Italy belonged to the semi-rigid type of dirigible, that is to say she had a rigid aluminum armor over half the body only. She was 340 feet long, carried seven tons of fuel and 670,000 cubic feet of gas. She had a cruising range of 3,200 miles. From her body hung four gondolas, three containing Maybach engines and one the steering equipment.
- Norinder, Harald,** Swedish scientist, discoveries about thunderstorms, 16-5670
- Norman architecture,** see Architecture, Norman
- Norman Conquest of England,** see England—history
- Normandy.** One of the most important of the old French provinces, bordering the English Channel. At the beginning of the 10th century it was seized by the Northmen under Duke Rollo; their descendants invaded England with William the Conqueror, Normandy being united with England up to 1204. It was twice reconquered during the Hundred Years' War, the French finally regaining it in 1450. Among its towns are: the old capital city of Rouen; the important ports of Havre, Cherbourg and Dieppe; and the watering-places of Trouville, Etretat and Deauville. It contains also the beautiful old towns of Lisieux, Caen, and Bayeux, Falaise, the birthplace of William the Conqueror, and Mont St. Michel.

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North Borneo. British colony in the East Indies; area, 31,000 square miles; capital, Sandakan. Timber, rubber, tobacco, sago, rice, gutta-percha, coconuts and rattans are produced.

North Cape. Headland on the island of Magerö, in the extreme north of Norway. It is frequently visited by tourists in the summer-time to see the midnight sun.
 when named, 8-2982

North Carolina. South Atlantic state, partially explored by Raleigh's expedition in 1584; area, 52,426 square miles; capital, Raleigh. Largest city, Winston-Salem. Corn, cotton, tobacco, wheat, sweet potatoes and oats are extensively produced; first state in manufacture of tobacco, and second in cotton. Lumbering and furniture-manufacturing are important. Wilmington, the chief port. Abbreviation, N. C. Nickname, "Old North State" or "Turpentine State." Flower, goldenrod. Motto, "Esse quam videri" (To be, rather than to seem). The Carolinas may have been named for Charles IX of France by Jean Ribault in 1562, or they may have been named in honor of King Charles I of England. First settlement thought to have been made on Albemarle Sound, 1653.

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North Channel. Channel dividing Ireland from Scotland and connecting the Irish Sea with the Atlantic.

North Dakota. Northern prairie state; area, 70,837 square miles; capital, Bismarck. Largest city, Fargo. Wheat-growing and stock-raising are carried on; and grain and dairy products are manufactured. Abbreviation, N. Dak. Nickname, "Flickertail State" or "Sioux State." Flower, wild prairie rose. Motto, "Liberty and

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Union, one and inseparable, now and forever." Dakota, a Sioux word, means "alliance of friends." First settlement, Pembina, 1812.

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Picture, as Peary left it, 13-4717

North Sea. Branch of the Atlantic lying between Great Britain and the Continent. Its average depth is only 120 feet in the south and 350 feet in the north; it contains the Dogger, Jutland and Great Fisher banks, on all of which vast numbers of cod and herring are caught. Commercially it is of immense importance, its great ports including Aberdeen, Dundee, Leith, Newcastle, Sunderland, Hull, Grimsby, London, Antwerp, Rotterdam, Amsterdam, Bremen, Hamburg, Gothenburg, Oslo and Bergen.

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Northern Ireland. Union of the six counties of Antrim, Down, Armagh, Londonderry, Tyrone and Fermanagh; area, 5,263 square miles; capital, Belfast.

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Northumberland. Northernmost English county; area, 2,018 square miles; capitals, Alnwick and Newcastle-upon-Tyne. Here are the Tyne, the Cheviots, and a large coal-field; towns include Tynemouth, North Shields, Wallsend, Blyth, Berwick-on-Tweed, Morpeth and Hexham.

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Norway. Kingdom of northern Europe; area, 125,000 square miles; capital, Oslo (formerly Christiania). It consists largely of mountain tablelands, and only three per cent of its area is fit for cultivation, oats, barley, rye and potatoes being the chief crops. Fishing is the chief occupation, the cod, smelt and sprat fisheries being very important; but the dairy-farming, timber, iron-ore, paper and pottery industries are increasing. The greater part of the population lives along the coast or on the fiords, the large towns of Bergen, Stavanger, Trondhjem and Drammen all being ports. Norway formed part of Denmark from 1397 to 1814, when it was united with Sweden, and it was not until 1905 that it again became a separate state.

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Nota bene. Latin for "note well"; usually written N.B.

Notary public. In law, a public officer with legal authority to put into writing deeds, contracts, etc., and to authenticate them or certify their accuracy, usually under an official seal; also to take affidavits and administer oaths.

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Nottingham. Capital of Nottinghamshire, England. Famous especially for its lace industry, it also has considerable tobacco, engineering and leather trades, a historic castle and a Roman Catholic cathedral. Here Charles Stuart set up his standard in 1642.

Notus, south wind, (the same as Auster), in mythology, 9-3234

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Noun. In grammar, a word that gives the name of anything. It is a part of speech used as the subject or the object of a verb, or governed by a preposition.

Nova Aquilæ, new star, 11-4038
Nova Scotia. Canadian eastern maritime province; area, 21,500 square miles; capital, Halifax. Much fruit is grown, the Valley of Annapolis alone exporting millions of barrels of apples a year; dairying is important and the wool clip exceeds a million pounds weight. Around Sydney, Cape Breton Island, there are important coal mines, while Halifax is a great port for transatlantic liners.

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Nova Zembla. Russian Arctic archipelago covering about 35,000 square miles.

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November. The eleventh month in our year, consisting of 30 days. In the old Roman year it was the ninth month, the name coming from Latin *novem*, nine.

Novgorod. Historic city of northwest Russia, having been the cradle of the Russian nation. It once had 400,000 inhabitants and was called Novgorod the Great. Its 11th-century cathedral is modeled after St. Sophia at Constantinople.

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Noyon. Ancient French city on the Oise, with a fine 12th-century cathedral. It was a residence of Charlemagne and the birthplace of Calvin.

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Nuisance. Such behavior or use of one's property as may, though without malicious or criminal intention, do wrong to others by disturbing them in the enjoyment of their property or preventing them from the exercise of common rights.

Nulli secundus. Latin for "second to none."

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Nuremberg. Second largest Bavarian city, famous for its manufacture of toys. Despite its commercial importance, it is extremely picturesque, and has medieval houses, churches and walls. No other large city in Germany possesses so picturesque an aspect.

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Nyasa, Lake. Southernmost and third largest of the great lakes of Central Africa, lying between Nyasaland, Portuguese East Africa and Tanganyika Territory. 11,000 square miles in extent, it is 350 miles long, its greatest breadth being 45 miles. Livingstone and Albrecht Roscher explored it in 1859.

Nyasaland. British Central African protectorate; area, 40,000 square miles; capital, Zomba. It produces cotton, tobacco, coffee, chillies, tea, rubber, rice, corn and wheat, shipped mostly by way of Beira. Blantyre is the chief commercial centre.

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Oakland. City 6 miles across the bay from San Francisco, California. Beautifully situated, with a fine climate, Oakland has also a large commerce as a railroad terminus and as a shipping centre. Its chief industries are shipbuilding, marble working, smelting, planing, fruit-canning and windmill factories.

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Oath. An affirmation or declaration or some other procedure which is authorized by law for attesting the truth of what is stated.

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Oats

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Obadiah. A Hebrew prophet, author of the short book which bears his name. Lived about 585 B.C.

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in London (Cleopatra's needle), 14-5212

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in Central Park, New York city, 17-6216

Oberammergau. A village in upper Bavaria, 45 miles from Munich, in which a famous Passion Play is performed once in every 10 years.

Obesity. The state of being very fat or fleshy.

Obi. Great Siberian river, rising in the Altai Mountains and flowing into the Arctic Ocean. With the Irtysh, it drains 1,125,000 square miles, and measures 2,500 miles.

Obiter dictum. Incidental opinion expressed by a judge, that is to say, not essential to his decision in the case under trial. *Obiter Dicta* is the title of a volume of essays by Augustine Birrell.

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Obsidian. A volcanic rock which in appearance and texture is very like bottle-glass. It occurs in black, brown, grayish green and other colors. Primitive peoples used it for making knives, spear-heads and other implements.

Obstacle race, 10-3769

Occult. Hidden or secret; thus, mysterious or supernatural.

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Ocre. A natural earth in which iron is mixed with earthy material. It is commonly red, reddish brown or yellow, and is used as a pigment in making paints.

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O'Connell, William Henry (1859-). An American prelate of the Roman Catholic Church, Archbishop of Boston, elevated to the cardinalate in 1911.

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Octavia, Nero's wife

Picture, bust of Octavia, 5-1862

Octavius, Gaius, *see* Augustus (Gaius Octavius)

October. The tenth month in our year, consisting of 31 days. It was the eighth month in the old Roman year, from Latin *octo*, eight.

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Octroi. French term for duties collected at the gates of a city or town.

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Oder. German river rising in Czecho-Slovakia and flowing through Silesia and Prussia into the Baltic. It passes Oppeln, Brieg, Breslau, Frankfurt and Stettin, 550 miles.

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Oersted, Hans Christian. Danish electrician and physicist, discoverer of electromagnetism; born, Rudkøbing, 1777; died, 1851.

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Oglethorpe, James Edward. English general and colonizer; born, London, 1696; died, Cranham Hall, Essex, England, 1785.

founded Georgia, 2-554

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O'Higgins, Bernardo, helped Chile win independence, 19-6864

director general of Chile, 19-7036

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Ohio. State bordering on Lake Erie; area, 41,040 square miles; capital, Columbus. Largest city, Cleveland. One of the richest states in the Union; agriculture is important, but it has 12,000 square miles of coal-fields, much oil and large iron, glass, pottery and textile industries. Among other important cities are Cincinnati, Toledo, Akron, Dayton and Youngstown. Nickname, "Buckeye State." State flower, scarlet carnation. Motto, "Imperium in imperio" (An empire within an empire). Ohio is an Iroquois word meaning "great." First settlement, Marietta, 1788.

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Ohio River. Chief left-bank tributary of the Mississippi, formed by junction of the Allegheny and Monongahela. Its basin is one of the chief American industrial areas, and it passes Pittsburgh, Cincinnati, Louisville, Evansville and Cairo. 975 miles.
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Okhotsk Sea of. Gulf of the Pacific between Siberia, Kamchatka and the Kurile Islands. It is a centre of the whale fishery.
Oklahoma. South-central state; area, 70,057 square miles; capital and largest city, Oklahoma. Formerly called Indian Territory, but Indians now compose only about one-twentieth of the population. Much oil and zinc are produced. Agriculture and stock-raising are important. Abbreviation, Okla. Nickname, "Sooner State." State flower, mistletoe. Motto, "Labor omnia vincit" (Labor conquers all things). Oklahoma is a Choctaw word for "red people."
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Oklahoma City. Capital of the state of Oklahoma, and also the largest city, situated on the north fork of the Canadian River. The city is the centre of an oil-producing, farming and stock-raising region. It has meat packing plants, flour and grist mills, oil refineries, cottonseed oil mill, poultry and egg packing plants, machine shops, soap and cracker packing factories, printing and publicity houses.
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Old North Church (Christ Church), Boston, Mass., dating from 1723, is the oldest ecclesiastical building in the city. Its tower is famous as the place where the signal appeared on the night of Paul Revere's historic ride.
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Old South Church (or Meetinghouse), Boston, Mass., built in 1729. Long used as a Congregational church, it is now a museum for historical relics. At the time of the Revolution many stirring meetings were held there.
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Olive oil. Oil obtained by pressing ripe olives. It is non-drying and is of a yellowish or yellowish green color. In countries where the olive grows the oil is much used for cooking. Some other uses are for salad-dressing, lubricating, lighting, making toilet soap, etc.
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Olympia. Capital of the state of Washington, on the southernmost inlet of Puget Sound, it is the port for a great area rich in timber, agricultural and mineral resources. The oyster industry is extensive. Much fruit is grown in the district.
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Omaha. Largest city of Nebraska, with meat-packing, smelting, railway and engineering industries.
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Omiak, Eskimo canoe, 7-2566
Omnia vincit amor. Latin for "love conquers all."
Omnibus bill. From Latin *omnibus*, for all; a name given to a bill which includes several measures having little, or even nothing, in common, presented in a legislative assembly. It was first used in the United States as a popular name of ridicule for the Compromise of 1850 a bill offered by Henry Clay.
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Omsk. West Siberian trading and agricultural centre, on the Irtysh.
Onager, animal, 6-2020
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Onega, Lake. Second largest lake of Europe, in northwest Russia. 3,764 square miles in extent, it is connected with Lake Ladoga by the Svir.
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- Ontario.** Most populous Canadian province; area, 407,000 square miles; capital, Toronto. It has immense agricultural resources, producing about half the milk, butter and cheese of the Dominion and more than half the fruit, while forests cover 100,000 square miles. Gold, silver, nickel, iron and copper provide great mineral wealth; and manufactures, at Hamilton especially, are important. Here are Ottawa, the Federal capital, London, Brantford, Windsor and other flourishing cities.
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- Opal**, account of, **19-7230-31**
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- Open square**, in drawn-work
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- Opera.** Drama set to music; one of the principal forms of the art of music. The vocal parts, in choruses, recitatives, arias, duets, trios, etc., have orchestral accompaniment and setting. Scenery, costume, action and dancing are important in the production of an opera.
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- Ora et labora.** Latin for "pray and work."
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- Orange Free State.** South African pastoral and agricultural province; area, 50,000 square miles; capital, Bloemfontein. Wool and ostrich feathers are exported.
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- Orange hawkweed**, see Devil's paint-brush
- Orange River.** Largest South African river, rising in the Drakensberg and flowing into the Atlantic. Great falls in its lower course impede navigation, and much of the country it flows through is sandy and desolate. The Vaal is its tributary. 1,300 miles.
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- Oration.** A formal discourse delivered in public in a dignified manner; particularly, a speech prepared for some special occasion.
- Oratorio.** A long musical composition which is more or less dramatic, usually based upon a religious theme, although sometimes it is heroic instead. The orchestral and vocal parts follow
- Oratorio (continued)**
very nearly the same forms as those of an opera, but scenery, costume and action are omitted in the performance. The name comes from the first compositions of this sort having been given in the oratory of the Church of Santa Maria in Vallicella, Italy.
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- Orchis Family**, see Orchids
- Orders, in architecture**, see Architecture—orders
- Ordinance.** A law or regulation that is local, enacted by the government of a municipality, such as a common council or a similar body.
- Ordovician rocks**, see Geology—Silurian period
- Oregon.** Middle Pacific state; area, 96,699 square miles; capital, Salem. It has great mining, agricultural and pastoral resources. Largest city and commercial centre, Portland. Abbreviation, Ore. Nickname, "Beaver State" or "Web-foot State." State flower, Oregon grape. Motto, "The Union." The meaning of the name Oregon is uncertain. First settlement, Astoria, 1811.
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Orpheus. A mythical Greek who by the sound of his lyre could move rocks and trees and charm wild beasts. Heart-broken over the death of his wife, Eurydice, he went to Hades to seek her. Pluto, after hearing his music, allowed Eurydice to follow her husband back to earth, but only on condition that he should not look back before reaching the upper world. The strain was too great; he looked, and Eurydice was lost again. After his death his lyre was placed among the stars by Zeus.
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Osaka. Second largest Japanese city, with over 700 factories. It does an immense trade in cotton, refined sugar, iron and metal goods, leather, glass and confectionery.
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Oscilloscope. A machine for throwing upon a rapidly moving machine a series of flashes of one-millionth of a second's duration, so that the motion appears slow and can be carefully examined.
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 and timber port. It contains the National University and a cathedral, and has considerable manufactures.
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Osmanli. The name of the Turki race that followed the fortunes of the Othman dynasty, conquered the surrounding Turkish and Tartar tribes, and settled in Asia Minor and the Balkan peninsula in the 13th, 14th and 15th centuries. They are industrially and commercially an indolent people, though they are brave soldiers.
Osmosis. In physics and chemistry, the process of diffusion between two fluids that are capable of mixing when separated by a partition which they can penetrate (an animal membrane, for instance). The process tends to bring about an equal condition on the two sides of the partition.
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Osteopathy. A system of treating disease by the manipulation of different parts of the body. It is based on the theory that diseases are due to some derangement of the mechanism of the skeleton, nerves, blood-vessels or other tissues.
Ostracism. From the Greek word for the tile or shell used in voting. A measure practiced in ancient Athens whereby a citizen who seemed to be becoming dangerous to the state in any way might be temporarily banished by popular vote. It did not inflict any stigma on a man, nor interfere with his property or civil rights in any way, merely banished him for ten years.
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Othman I. Turkish sultan, founder of the Ottoman Empire; lived from 1259 to 1326.
Otho, Marcus Salvius, Roman emperor, 5-1863
Otis, Elisha G., invented first elevator, 19-7212
Otis, James (1725-83). Massachusetts patriot, prominent in opposition to British rule.
Ottawa. Capital of the Dominion of Canada, on the Ottawa River, Ontario. A well-built, modern city, it contains two cathedrals, a university, and the splendid Dominion parliament house; there are machinery, paper, flour, and especially lumber industries.
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Ottawa River. Canadian river rising in Ontario and emptying into St. Lawrence River. 685 miles.
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Otto I (912-73). Emperor of the Holy Roman Empire from 962 until his death. He had succeeded his father as king of Germany in 936. In the year 955 he had a victory over the Magyars.
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Oxalic acid, (COOH)₂. An acid which exists in various plants, particularly wood sorrel, or oxalis. It forms white crystals, will dissolve in water and alcohol, has an excessively acid taste and is a strong poison. To produce it in large amounts the action of fused caustic soda or potash on sawdust is employed. Some of its uses are: removing inkstains, printing calico, bleaching straw and flax, dyeing, etc.

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Oxenham, John. *See* Poetry Index for poems and notes

Oxford. Cathedral city and capital of Oxfordshire, on the Thames, here called the Isis. Famous for its university, dating from about 1100, it is one of the finest English cities; there are 21 colleges and many beautiful buildings.
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Oxidation. The act or process of combining with oxygen. *See* Oxids.

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Oxlip, flower. *Picture* (in color), 14-4991

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Pachacuti, Inca of Peru, 19-6860

Pacific Highway
Picture, Chuckanuck Drive, Washington, 7-2307

Pacific Ocean. Largest of the oceans, having an area greater than all the land in the world. One and three-quarter times as big as the Atlantic, it contains the greatest known ocean depths. Few large rivers flow into it, but it is remarkable for its immense number of islands, among them New Zealand, the Philippines, the East Indies, Japan, the Aleutian Islands, and the Melanesian, Micronesian and Polynesian groups. Its splendid harbors include Vancouver, San Francisco, Valparaiso, Auckland, Sydney, Singapore, Shanghai and Yokohama.
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Packets, ships
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Packing industry, *see* Meat industry and trade

Paderewski, Ignace Jan (1860-). A Polish pianist and diplomat. After the outbreak of the World War in 1914 he worked for the cause of Polish independence, as head of the National Polish Committee, helping to formulate the Peace Treaty. In 1919 he became premier and minister for foreign affairs for six months, and in this capacity signed the Treaty of Versailles, as musician and statesman, 13-4688

Padua. City of Venetia, Italy, with a famous university, the most important in Europe during the later Middle Ages. Still surrounded by walls, Padua has nearly fifty churches, the finest of which are the Cathedral and St. Antonio; the Chapel of the Annunciation has frescoes by Giotto.
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 Why does it not hurt when we cut our hair?
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- Paint.** A preparation of a coloring substance made by mixing with a suitable vehicle, such as oil, water or varnish. Sometimes the term is used for the pigment alone. Paints form surface-coatings which preserve as well as color; sometimes they contain driers, as japan, and thinners, as turpentine. When oil is used with the pigment the paint is called oil paint. Some pigments are mineral.
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- Paisley**. Town and port in Renfrewshire, Scotland, on the White Cart, 7 miles from Glasgow. Famous especially for its shawls and for its abbey, it has thread, dyeing, bleaching, chemical and shipbuilding industries.
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- Paleozoic age**, geological era, 2-634
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- Palafox, José**, in siege of Saragossa, 14-5119
- Palais Bourbon**. A building in Paris in which the Chamber of Deputies, or Lower House, meets. Hence an alternative name for the Chamber of Deputies.
- Palais Royal, Paris**
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- Palermo**. Capital and largest seaport of Sicily, with a large export trade. The ancient Panormus, the stronghold of the Carthaginians in Sicily, it was successively conquered by Pyrrhus, the Romans, the Vandals, Belisarius, the Saracens, the Pisans and the Normans, and it still has many historic buildings. There are nearly 300 churches and chapels, a university and a 12th-century cathedral.
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- Palladio, Andrea**, Italian architect, 4-1459; 17-6311
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- Palladium** (Pd). A rare metallic element belonging to the platinum group. It is sometimes found native, and also with platinum or gold.
- Palladium** (*continued*)
 Discovered in 1803 by Wollaston, it was called after the recently discovered asteroid Pallas. It is silver-white, malleable and permanent in the air; used for plating silver goods, in dentistry and for making scales and division marks on scientific instruments. Palladium has been found to be remarkable for its capacity for absorbing hydrogen.
- Pallas Athene**, *see* Athena
- Palma, Jacopo or Giacomo** (called **Palma Vecchio**), Italian painter, 3-1106
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- Palma**. Capital of the Spanish Balearic Islands, in Majorca, with textile trade and fruit exporting.
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- Pan-American Union**, Washington, D. C.
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- Pan-Slavism**. A movement to bring about unity between all Slavonic races. It was an important factor in Near Eastern affairs during the 19th century owing to Russian support.
- Panama**. Capital of the Republic of Panama, at the southern end of the Canal. A cathedral and university city, it was founded in 1671 by the pirate Morgan.
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- Pantograph**. An instrument for copying drawings on the same scale either enlarged or reduced in size.
- Pantomime**. A dramatic performance chiefly in dumb-show, in which it originated in Rome. In France the term was later applied to allegorical performances with mythological characters. In England subjects from popular tales with burlesque, music and dancing were employed, and became a feature of the Christmas season. in Rome, 16-5909
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- Paper lanterns and shades**, directions for making, 18-6777
- Paper nautilus**, *see* Argonaut
- Paper weights**, lead, directions for casting, 3-1023
- Papier-mâché**. From French *papier*, paper, and *mâché*, chewed. A material made of paper reduced to pulp of a doughy consistency, with such substances as size, glue, resin or clay added. It can be shaped or molded into a variety of articles, and dries into a hard, strong substance. Its manufacture has become an important industry.
- Papin, Denis**, French inventor, 17-6397-98
- Papineau, Louis Joseph**, Canadian leader, 3-946
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- Papua, or New Guinea**. Territory in East Indies, under Australian administration; area, 90,540 square miles; capital, Port Moresby. Peopled by negroid tribes, it is mountainous and thickly forested. Copra is the chief export, though there is some trade in tobacco, gold, rubber, sisal and copper; the fauna and flora are brilliant.
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- Pará**. Cathedral city and port of Brazil, near the mouth of the Amazon. Famous for its great export of rubber, it trades also in nuts, hides and cacao.
- Para rubber**, *see* Rubber
- Parabola**. A curve which is commonly considered as being formed by the intersection of a cone with a plane that is parallel with the side of the cone.
- Paracelsus, Philippus Aureolus**
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- Parachute**. Derived from words meaning "prevent fall." A contrivance with which to make a descent from a great height, especially from a balloon or airship of any kind. In form it resembles an umbrella. Its invention is accredited to Sebastian Lenormand.
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- Paradise Lost**, by Milton, account of, 4-1240-42
- Paradise of Dainty Devices**, a collection, 3-1118
- Paradise Regained**, by Milton, 4-1242
- Paraffin**. From Latin *parum*, little, and *affinis*, akin. A substance found in deposits in the earth and as a constituent part of petroleum, or produced in the distillation of wood, coal, etc. In a pure state it is waxy, white or colorless, and has no taste or smell. It shows no chemical reaction to acids or alkalis. It is used in water-proofing materials, preserving food, and manufacturing candles, matches, etc. *See also* 13-4540.
- Paraguay**. Inland republic of South America; area, 61,000 square miles; capital, Asuncion. Paraguay's right to 40,000 square miles of additional territory is disputed by Bolivia. Most of it consists of dense jungles or grassy uplands, the chief exports being hides, timber, tobacco, meat, quebracho and Paraguayan tea.
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- Parallax**. The apparent displacement of an object, or the difference of direction which it appears to hold, as it is seen from two different points. To get an effect of parallax, alternately close one eye, then the other, looking at a single object. In astronomy, the difference in direction of a star or other heavenly body as seen from a point on the earth's surface and as seen from some other designated point, for instance, the sun or the centre of the earth.
- Parallels of latitude**, 1-19
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- Paramaribo**. Capital and port of Dutch Guiana, exporting coffee, cocoa and sugar.
- Paraná**. Second largest South American river, flowing from the Brazilian highlands into the La Plata. It passes Corrientes, La Paz, Santa Fé and Rosario, and the Paraguay is its tributary, 2,450 miles.
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 * various scenes, 11-3825-28
- Paris, Treaty of, 1763**
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- Paris green, or emerald green**. Now used as an insecticide; formerly used as a pigment, until it was found too poisonous. Made of the union of copper acetate and copper arsenite.
- Park, Mungo**, African explorer, 2-166-67
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- Parker, Sir Horatio Gilbert**, Canadian novelist, 15-5369
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- Parley, Peter**, name used by S. G. Goodrich, 14-5014

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Parliament, Houses of, London
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Picture, 12-4359
Parliament, Irish, *see* Ireland—Parliament
Parliamentary law. The rules which govern the procedure of deliberative assemblies. It is a distinct branch of the law and covers the duties of officers and the order for all motions.
Parma. Ancient city of northern Italy, containing an 11th-century cathedral, 60 churches, a university, and the ducal palace of the Farnese, with many fine examples of Correggio's works.
Parnassus, in mythology, 9-3237
Parnell, Charles Stewart, Irish leader, 8-2936
Parody. Among the Greeks a comic imitation of a serious poem. Later applied to comic imitation of any variety of prose. Parody is found in the literature of very early peoples, but the Greeks first gave it form, and Aristophanes, the great comic poet, parodied whole passages of Euripides. Don Quixote is a parody of medieval romance.
 earliest Greek, 16-5748-49
Parole. French for "word." In international law it is the pledge of honor of a prisoner of war by which he promises, if granted freedom, to observe certain conditions imposed by his captors. In the American and British armies it can be given only through a commissioned officer. Release on parole is still somewhat rarely practiced. In penal law parole is a pledge of good behavior given by a convicted person as a condition of exemption or release.
Parrakeets, or Paroquets, birds, 10-3616
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 position on Acropolis, 2-705
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 sculptured figures of, 3-1069; 11-3808; 12-4215, 4217
Parthian shot. Remark uttered at the moment of leaving, so as to give no chance of effective reply. The term is derived from the practice of the Parthian horsemen in shooting arrows at their pursuers when retreating.
Parthians, ruled Persia, 3-918
Participle. In grammar, a verbal adjective. It is formed from a verb and modifies a noun or pronoun. In English there are two participles: the present, for example, *giving*, and the past, for example, *given*.
- Parties**
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 games for, *see* Games—for parties
Partnership. An association of two or more members carrying on a legal business for profit. Convicts, alien enemies and corporations cannot enter partnerships. General, or ordinary, partnership conducts business in accordance with general usages; particular partnership is confined to a single enterprise. In a limited partnership the liability of some or all of the partners is only the amount of capital they invest.
Partridge berry, vine, 18-6570-71
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Partridges, birds, 12-4364-65
 mountain partridge, name for California quail, 14-5135
 name given to grouse, 13-4760
Pictures
 European partridge (in color), 8-2898
 French partridge (in color), 8-2900
 nest and eggs, 8-2757
Parts of speech. Eight in number: noun, adjective, pronoun, verb, adverb, preposition, conjunction, interjection. A noun is the name of a person, place or thing; an adjective qualifies a noun; a pronoun is used instead of a noun; a verb expresses action or being; an adverb modifies a verb, adjective or other adverb; a preposition shows the relation between one noun and another; a conjunction connects words and clauses; an interjection expresses an emotion of the mind. Some grammarians add a part of speech called the article, as a, an, and the.
Pascal, Blaise, French author and scientist
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 writings of, 18-6713-14
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Passover. A double festival combining the feast of unleavened bread and a festival in which the chief rite was the sacrifice of a lamb within the family circle and the sprinkling of its blood on the door-posts. The first was probably the old Canaanitish harvest festival, when the people busy with field labors were accustomed to eat unleavened bread; the second probably a spring full-moon festival also observed by the Canaanites. The Hebrews adopted both festivals and made the sprinkling of the blood symbolic of the protection received when pestilence struck Egyptian households, and the unleavened bread symbolic of the haste with which their departure from Egypt was attended.
Passport. A document issued by a government for the identification and protection of its citizens traveling abroad. First, it is a certificate of the citizenship of the bearer and, second, a formal permit authorizing him to leave the state. This, presented to the foreign government, obtains permission to pass through by the act of an officer in putting a visé upon it.
Pasteur, Louis, French scientist
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 and microbes, 2-559
 checked disease of silk-moths, 18-6529
Pictures, portraits, 15-5483, 5615
Patagonia. Territory in the extreme south of South America, in Argentina and Chile. It consists mainly of high pastoral plateaus, with large areas of stony desert, there being little or no rainfall east of the Andes during eight months of the year.
Patagonians. A general name for the tall people who inhabit South America south of the Rio Negro. They are broad-shouldered, very muscular, and carry themselves in a stately manner. Their faces are round or oval, their noses rather short, and their eyes small. They are a peaceful people who are fast dying out.
Patching, lesson in, 11-3857
Patent. A grant by the state to an individual of any property, franchise, privilege or title; particularly such a grant to an inventor or discoverer of a useful art or device. Patents are obtained by making application to the Commissioner of Patents in accordance with the form prescribed by law. The application is referred to an examiner, and if no objection is found, the patent is issued. Patents are property and may

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be sold. An owner may grant license to use upon payment of royalties, or may grant the right to manufacture and sell for a certain time. All patented articles must be marked "patented," and bear the exact date.

Pater, Walter, author, 11-4003

Pater patriae. Latin for "father of his country."

Paterfamilias. Latin for "father of a family."

Paterson. City of New Jersey, with an important manufacture of silk. Founded primarily as an industrial centre through the activities of Alexander Hamilton, who organized here the first great industrial corporation in America.

Pathology. The study of diseases, including their nature, causes, progress, symptoms and results.

Patinir, Joachim, Flemish painter

Picture, St. Christopher, 6-1993

Patmore, Coventry, English poet, 12-4231

See also Poetry Index, for poems and notes

Patmos. Island of the Ægean where St. John lived.

Patras. Chief port of western Greece, exporting olive-oil, wine and currants.
population, 14-4918

Patres, rulers of Roman family, 4-1193

Patriarch. The head of a family, used particularly of Hebrew ancestors, Abraham, Isaac, etc. In the Christian Church certain bishops, those of Rome, Antioch and Alexandria, were so called; then Constantinople was added, and later, in 451, Jerusalem.

Patricians, nobility of Rome, rule of, 4-1193

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Patrons of art

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Pattie, James O., and the Grand Canyon,

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Paul I, tsar of Russia, 16-5694

Paul and Virginia, story, comment on, 18-6716

Paul Pry. A character in the play of the same

name by John Poole, produced in 1825. His fa-

vorite remark was: "I hope I don't intrude."

Hence Paul Pry means an inquisitive busybody.

Paulinus, missionary

Poem about. Paulinus and Edwin, by F. T.

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Paumotu Islands

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Pausanias, Greek author

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Pavement

Question about. Why has every pavement a

curb of granite? 5-1752

Pavia. Ancient city of Lombardy, Italy, still

partly surrounded by walls. It has a famous

university, a cathedral and a massive medieval

castle.

Certosa, architecture of, 17-6299

Pictures. Certosa (gravure), 17-6303, 6306

Pawnbrokers

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Fayer, Julius, arctic explorer, 13-4712

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narrow-leaved everlasting pea, flower (in color), 14-4987

Peace

Poems about

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Peace, by Henry Vaughan, 12-4350

There's a Good Time Coming, by Charles Mackay, 7-2637

Peace River. Canadian river rising in the Rocky Mountains in northern British Columbia. It flows through Alberta, emptying into Lake Athabaska. 1,065 miles.

Peace River district, Canada

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Pear, Prickly, *see* Prickly pear

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Pearce, Charles Sprague, paintings in Library

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Pearl River. American river, rising in Winston County, Miss. Flows into the Gulf of Mexico. 350 miles.

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Peccary, wild pig of America, 5-1722-23

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Pecos River. American river, rising in the Rocky Mountains, New Mexico; flows into the Rio Grande. 800 miles.

Pectin, gum in flax, 9-3318

Pedersen, and wireless telephony, 17-6247

Pedometer. An instrument like a watch, used for measuring distances traveled by walking. It records on a dial place either the number of steps taken by the person carrying it, or the distance based on the individual's average length of step.

Pedro I, emperor of Brazil, 19-7042-43

Pedro II, emperor of Brazil, 19-7042-43

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- Pelorus Jack**, nickname for dolphin, 6-2220
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- Pelton Wheel**, turbine, 15-5429
- Peludo**, hairy armadillo, 7-2398
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- Pelvis**, part of skeleton, 5-1676
- Pelvoux, Mt.**, Alps
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- Pembroke, Countess of**
Poem about. Epitaph on the Countess Dowager of Pembroke, by William Browne, 13-4599
- Pembroke, Richard Clare, Earl of**, 8-2932
- Pemmican**. A staple article of food for hunters, trappers, travelers, etc., in the great Northwest, Arctic and Antarctic regions, consisting of beef or deer meat pounded into a powder and liberally mixed with boiling fat which is poured over it. Sometimes berries are pounded up and mixed in. Pressed into cakes, it is packed in rawhide cases till needed.
- Penang Island**, 9-3184
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- Pencils**
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- Pendulum**
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- Peninsular War**, Spain, 10-3571; 14-5046
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- Penknife**, as a drawing compass, 16-5886
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arms on Mason and Dixon's Line marker, 12-4153
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- Pennell, Joseph**, American graphic artist, illustrator and author. Born, 1860; died, 1926. One of the foremost American etchers and lithographers. Moved to London, England, in 1884 and was strongly influenced by Whistler. He wrote and illustrated many books and also illustrated books by other authors.
- Pennsylvania**. Great coal- and oil-producing state; area, 45,126 square miles; capital, Harrisburg. Anthracite is found over an area of 472 square miles, and there are great iron, steel and
- Pennsylvania (continued)**
other manufactures. Farming is also important. Here are Philadelphia, the largest city, Pittsburgh, Scranton and Reading. Abbreviation, Pa. Nickname, "Keystone State," "Steel State" or "Coal State." Motto, "Virtue, Liberty and Independence." The name came from Penn, in honor of William Penn, and sylvania, woods. First settlement, Philadelphia, 1683.
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- Pennsylvania, University of**
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- Pennsylvania Academy of the Fine Arts**
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- Pennsylvania Station**, New York, note and picture, 2-419
- Penny post**, England, 7-2298
- Pennyroyal**, flower
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- Pennywort, Marsh**, 16-5734
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- Penobscot River**. American river, rising in Somerset County, Maine, and flowing into Penobscot Bay. 350 miles.
- Penoche**, candy, recipe for, 1-340
- Penrose, J. Doyle**, British painter
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Why will pen and ink write on paper better than on a slate? 14-5087
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- Pension**. An annual income granted by public authority, generally for some former service, military or civil, to assure provision for old age, as a compensation for the low pay of government service. In some European countries a system for pensioning workmen is now in force, as in England and in Germany.
- Pentapus**, fish
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- Pentstemon**, flower. *Picture* (gravure), 19-7178
- Penumbra**. When the shadow of an opaque object is thrown upon a surface at some distance from it by a fairly strong light, the shadow is divided into two portions, an inner dark portion called the *umbra* and a lighter portion around it called the *penumbra*.
- Peonage**. A term applied to the system of labor which formerly prevailed in Spanish America, especially in Mexico. Begun as a protection of the natives from their conquerors by the government, it deteriorated in many cases into virtual slavery. Labor required from the *peons*, or Indians, was: (1) free, when they served by def-

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Peonage (continued)

inmate contract; (2) forced, as punishment for crime or debt. The chief evils came because Indians were segregated in separate villages and were deprived of opportunity to rise. When the institution disappeared the term peon applied still to a laborer of native or mixed blood. Convict labor in the South in the 20th century was found to share some of the abuses of peonage.

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Pepperell, Sir William, at Louisbourg, 2-683; 3-779

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Pepys, Samuel, life and Diary, with quotations, 5-1728-30

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Percentage. A certain rate of duty, interest, discount or commission allowed on a hundred, as a 5 per cent commission on a land sale.

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Periwinkle, or myrtle

Pictures, flower (gravure) 19-7180; (in color), 14-4988

Periwinkles, molluscs, 19-6892

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Perjury. The crime of knowing and willfully giving false testimony in a question at issue in the law courts. It has always been severely punished; to-day by fine and imprisonment.

Perkin, Sir William, British chemist, 13-4531

Permallay, new submarine cable, 17-6054

Permian period, in geology, 4-1296

Pernambuco, or **Recife**. Brazilian port, exporting sugar, cotton, coffee, cocoa, hides, dyewoods and rubber. Founded in 1504, it has a cathedral and some of the finest buildings in the country.

Perneb, Lord Chamberlain, ancient Egypt

tomb of, 3-809-10

Peroxid of hydrogen (H₂O₂). Discovered in 1818 by a French chemist, Thénard, it is the colorless compound of hydrogen and oxygen containing twice as much oxygen as is contained in water. Minute quantities of it occur in the air, in rain water and in snow. A powerful bleaching agent, it is used for bleaching ostrich feathers, silk, ivory, wood, etc. In medicine and surgery it is used as an antiseptic. It may be prepared by action of acids on peroxid of sodium.

Perrault, Charles, French writer, 9-3193-94

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Pershing, John Joseph (1860-). American general, graduated from U. S. Military Academy in 1886. Served in the Spanish-American War, and with distinction in the Philippines, for which services he was promoted from captain to brigadier-general. While absent on duty on the Mexican border his wife and three young daughters were lost in a fire, but his son was rescued. In 1917 he became commander of all troops on Mexican border, was then chosen to command the A. E. F. in the World War in Europe, and was made general, U. S. A. Insisted upon integrity of American army, and as Commander-in-Chief, planned the American operations at the Marne in 1918, at St. Michel and in the Meuse-Argonne. He was appointed permanent general, and in 1921 Chief-of-Staff.

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Persian birds, name given to hens, 12-4491

Persians. The name given to the inhabitants of Persia. Strictly there is no race of this name. One of the races inhabiting this region is called Iranians from their language. As a nation the Persians have had a great history and an interesting literature.

Persicaria, flower

Pictures

climbing (in color), 15-5400

pink (in color), 15-5399

Persimmon, or **date plum**. A yellow thin-skinned fruit containing a sweet pulp and belonging to the family of Ebenaceæ. Japanese persimmon, the principal native fruit of Japan, grows also in southern China, some of the East Indies, and in Southern Europe. Introduced into the United States, it flourishes in California and the Gulf and Atlantic states as far north as Virginia. The American persimmon is native from Connecticut and Kansas south to Florida. The fruit is smaller than the Japanese variety.

Personal property. Distinguished in law from real property, personal property passes, upon the death of the owner intestate, not to his heir, but to his personal representative. It generally consists of movable things, as cattle, goods, money, stocks, bonds, patent rights, copyrights, etc.

Perspective, explanation, 14-5222

in Persian art, 2-575-76

invented, in early Christian art, 2-575

Question about. Why do two sides of a road seem to meet in the distance? 14-5222

Perth, capital of Western Australia, 7-2470

Perth. Cathedral city and capital of Perthshire, Scotland, on the Tay. Finely situated among

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- Perth** (*continued*)
wooded hills, it is noted especially for its dyeing industry. It contains a 13th-century church in which John Knox preached.
- Peru.** Western maritime republic of South America; area, 532,047 square miles; capital, Lima. The centre and greater part is a lofty Andean plateau, sinking in the east to the forests of the Amazon, while the fertile coastal belt is the chief centre of population. The largest towns are Callao, the port of Lima, Arequipa, Mollendo, Ayacucho, Payta and Cuzco; copper, silver, petroleum, sugar, cotton, coffee, alpaca wool and guano are the chief exports.
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llama, use in ancient Peru, 5-1600
mines, with picture, 19-6983
Tacna and Arica, claim on, 19-7038
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- Perugia.** Picturesque city of central Italy, the former centre of the Umbrian school of art. It has a richly decorated Gothic cathedral, while the Church of St. Peter has pictures and pillars by Raphael, Parmigiano and Perugino.
in the history of painting, 3-959-60
Picture, church of San Bernardino (gravure), 17-6303
- Perugino (Pietro Vannucci),** Italian painter, 3-959
Picture, Virgin and Child (gravure), 3-964
- Peruvian bark**
Picture, plant producing, cinchona (in color), 8-2998
- Peseta.** A Spanish gold coin in use since 1868, equivalent to about 20 cents and divided into 100 centimos. Also the name for a former Spanish silver coin worth about 25 cents.
- Peshawar.** British military centre in India near the Khyber Pass.
- Peso.** A Spanish or a Mexican dollar.
- Pessimism.** The theory that the world is in essence evil and that life tends to become altogether undesirable. It is an attitude toward life rather than a doctrine.
- Pestalozzi, John Henry,** Swiss educator, 16-6006
life and influence, 14-5252-53
devotion to children, story of, 1-127-28
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- Pétain, Henri** (1856-). French soldier, obtained his commission from St. Cyr, passed through the Ecole de Guerre, and filled various staff appointments. Upon the outbreak of World War he was given a brigade, then a division, and in October an army corps. Distinguished himself in French offensive near Arras in May, 1915, and was given command of the Second Army. In February, 1916, he fought the German attack upon Verdun and saved the city. He was made a Grand Officer of the Legion of Honor and was in command of the Armies of the Centre. In 1917 he became chief of general staff of army and then Commander-in-Chief of French armies on western front. He nursed the army back to healthy morale, and then fought battles of limited objectives as August 1 at Verdun and Chemin des Dames. When British Fifth Army rolled up near St. Quentin, in March, 1918, did much to relieve the situation. During the subsequent advance he maintained brilliant liaison with flanks. With peace Pétain was made Marshal of France.
- Petal,** part of flower, 3-1013
- Petar Pan,** by Barrie, summary of, 13-4659-64
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sent expedition to Alaska, 16-5789
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- Peter the Hermit,** and First Crusade, 7-2584-85
- Peterborough.** A city in Ontario, Canada. It has the largest hydraulic lift in the world.
- Peterborough,** England
cathedral, 16-5970
Picture, cathedral (gravure), 16-5975
- Peterborough, N. H.,** MacDowell's home, 19-6926
Picture, Colony Hall, 19-6926
- Petersburg** Va., siege of, 7-2440
- Petition.** A supplication addressed to one who has the right to grant it. Every British subject has the right to petition the sovereign or his representative or the governing houses. The American Constitution likewise guarantees to its citizens the right of petition for a redress of grievances.
- Petition of Right,** 1628. Declaration by the English Parliament of the rights of the people of England.
signed by Charles I, 11-3849
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- Petrarch,** Italian poet
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- Petrified forests**
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- Petroleum**
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- Peveril of the Peak,** by Scott, note on, 11-407.
- Pewees,** birds
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- Pewter.** An alloy of tin with lead, antimony or bismuth. It is soft, similar in appearance to tin, but duller and darker. Formerly extensively used for plates, teapots and other domestic utensils, but because of poison in lead other alloys are now used.
- Phaeton,** tried to drive Sun's chariot, 9-3233
- Phalangers,** animals, 7-2504
- Phalanx.** Ancient Greek name for the heavy infantry in battle line. Usual depth seems to have been eight men. It was closely packed with shields touching. The pikes were about 20 feet long and the first 5 ranks projected in front. The others held their spears over their comrades'

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shoulders and dropped them if it became necessary to manoeuvre.

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Phanerogams, flowering plants

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Pharaohs, kings of Egypt, *see* Egypt, Ancient; also names of kings

Pharisees. A Jewish religious party who insisted upon the strict observance of the law, both written and oral; believed in the restoration of a Kingdom of Israel when their punishment of foreign domination was ended; kept themselves apart from the mass of the people. They were great enemies of Christ and finally brought about his death.

Pharnaces, son of Mithridates

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Pharos, or lighthouse

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Pheasant's eye, flower

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Phenomenal berry, cross between bramble and raspberry, 4-1388

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Athene, in Parthenon (statue), 3-1079

head of Athene, 12-4219

Jupiter, statue of, Olympia (gravure) 7-2608

See also Parthenon—*Pictures*

Phigalia, temple of Apollo, frieze of, 12-4222

Philadelphia. Chief city of Pennsylvania, on the confluence of the Schuylkill and Delaware rivers. Founded by William Penn, the Quaker City has grown rapidly, its suburban territory in especial being very beautiful. Fine parks, buildings and monuments are numerous. In historical interest the city is rich. It has communication with the productive Middle West. Oil is one of its largest shipments; in the manufacture of steam locomotives, street-railway cars, knit goods, carpets and rugs. Philadelphia leads. Shipbuilding is very important.

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Phillip, King (c. 1639-76). A famous Indian chief called King Philip by the English, though his Indian name was Metacomet. He united the Indians of New England in a general war upon the whites. The death of King Phillip in 1676 put an end to "King Phillip's War."

Phillip II, king of Macedon

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Phillip II, king of Spain, 14-5044

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husband of Mary, queen of England, 5-1817

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Phillip II (Philip Augustus), king of France

conquered English possessions in France,

10-3432

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Philippa, Queen, wife of Edward III

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saved men of Calais, 5-1682

Philippi, Battle of. Famous as the battle in the

last act of Shakespeare's play of Julius Caesar.

Two battles were fought in 42 B.C. between the

forces of Brutus and Cassius, the murderers of

Cæsar, and Mark Antony and Octavius, Cæsar's

heir. The defeat and deaths of Cassius and

Brutus made Antony and Octavius masters of

the Roman world.

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terraced rice fields, 5-1853

Philippopolis, Bulgaria, 14-4926

Phillips, Wendell (1811-84). American orator

and reformer, born and died in Boston. Became

an anti-slavery leader, and the orator of the

movement; wrote for the Liberator and the Anti-

slavery Standard; published a number of

pamphlets.

Philistine. Cretans of the mainland, called Phil-

istines by the Israelites.

Phillpotts, Eden, novelist, 11-3899

Philosophy. In the narrowest sense, the term is

nearly equivalent to metaphysics, but is usually

understood as including all the liberal arts and

sciences, hence the degree of Doctor of Philo-

sophy, for proficiency in any of these.

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Say's phoebe, account of, 14-5142-43

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Phoenicia. The Greek and Roman name for the

territory along the Mediterranean coast of Syria.

Bounded on the east by the Lebanon Mountains,

the country was some 200 miles long and from

5 to 15 miles broad. The origin of the name is

unknown. The different settlements were never

welded together into a powerful kingdom and

never played an important political part.

Phoenicians

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introduced flax-growing into Ireland, 9-3317

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Phoenicians, 4-1431

Phoenix. Capital of the state of Arizona. Cen-

tre of the Salt River Valley, the richest agri-

cultural district in the state.

Phoenix, imaginary bird, 1-355

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Sound; Thermometer; Water; Weather
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Physiognomy. The art of discovering the pre-
dominant temper and other mental character-
istics from the outward appearance, especially
from the features of the face.

Physiography. The study of the earth, its
spherical form, its envelopes of air and water,
its cold crust and heated interior and their in-
fluence on life.

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piano, why does it answer? 5-1750

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Piave. Italian river flowing from the Carnic
Alps to the Adriatic. In the World War the
region of the Piave was an Italian battle area.
125 miles.

Picardy. Part of France lying nearest to Eng-
land. Before the Revolution it was one of the
chief French provinces, containing Boulogne,
Calais, Amiens, Abbeville and St. Quentin.

Picaresque novel, 19-7127

Piccolo. A flute of small dimensions having the
same compass as an ordinary flute, with all the
notes sounding an octave higher than their nota-
tion. Made in three keys, C, D flat and E flat.

Pichiciagos, pigmy armadillos, 7-2398

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Piece of eight. Name for a Spanish dollar
widely current in the 17th and 18th centuries
throughout North and South America. It was
so called because its value was eight reals. In
England, in 1797, owing to the scarcity of coin,
pieces of eight were surcharged in large num-
bers and issued as legal English currency.

Piedmont. Formerly a principality and now an
important district of northwest Italy, surround-
ing Turin. It formed the chief part of the king-
dom of Sardinia, which played a great part in
the wars of liberation and supplied Italy with
kings.

massacre of

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- Pierre**, Capital of the State of South Dakota, on the Missouri River. It is the centre of an extensive stock-raising and farming district. It is lighted by natural gas. A government industrial school for Indians is among the public buildings.
- Pierrefonds, Château of**, 18-6492
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- Pierrot**
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- Piers Plowman, Vision of**, 1-305
- Pietermaritzburg**. Cathedral city, railway centre and capital of Natal, South Africa, with tanning industries.
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- Pigment**. The coloring matter to be found in certain cells of the dermis of vertebrates, and in the epidermis of arthropods. In mammals the pigment is brown or nearly black. In birds the coloring matter is mostly in the feathers.
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- Pike, Zebulon Montgomery** (1779-1813). An American soldier and explorer. In 1806 he discovered the famous peak of the Rocky Mountains now called Pike's Peak. Pike was killed during the War of 1812 while attacking York, Upper Canada.
- Pike**, fish
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Plaster of Paris ($\text{CaSO}_4 + 2\text{H}_2\text{O}$). A cement obtained by pulverization and dehydration of gypsum. It contains 18.6 per cent of sulphuric acid, 32.5 per cent of lime, and 20.9 per cent of water. When it is heated to between 250° and 400° Fahrenheit, gypsum loses three-quarters of its water, and in powdered form is called plaster of Paris. When water is added it will set in from 6 to 10 minutes, and retarders are used to delay the hardening. Used for hard-finish plaster for

Plaster of Paris (continued)

- walls and ceilings, in the construction of temporary buildings, in surgery for making casts, in dentistry for impressions from which plates are made.
Plastering. The spreading of a composition having lime for its basis, while it is wet and plastic upon a wall or ceiling, by means of laths. Generally applied in two or three coats; the first, a coarse mortar of lime and sand with fibre, the second, lime and sand without hair, and the third, lime with fine sand, or lime, fine sand and plaster of Paris. Proportion of sand and lime varies, but it is generally 2 to 1.
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Platinum (Pt). One of the precious metals, rarer than gold or silver. It is steel-gray in color and easily beaten into leaves or drawn out into wire. In cost it is worth from five to six times the price of gold. Russia has great platinum beds in the Urals. Platinum is found in small quantities in Canada and the United States.
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Platte River. An American river rising in the Sweetwater River, Wyoming, and flowing into the Missouri River, 1,260 miles.
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Plebiscite. Popular vote on a definite political question, as when Louis Napoleon was elected prince-president of France in 1848. The word, from the Latin, means "decree of the people."
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Pleurisy. Inflammation of the pleura, the serous membrane inclosing the lung and covering the under-surface of the chest. The lung-covering and the chest-covering move against one another in breathing, but freely, because of a lubricating oil which is secreted. Pleurisy occurs after exposure to cold, following diseases of the lung, or as result of an injury. It may be marked by an effusion of fluid, which, if not absorbed, will have to be drawn off by artificial means. In dry pleurisy there is no effusion of fluid.
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- Plumb-line**
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- Plumbing**. The pipes and fixtures in houses and buildings used to supply water, gas and heat. Formerly these fixtures were of lead; hence the name "plumber" for a worker in lead (Latin *plumbum*). To-day plated pipe, brass, copper, wrought-iron and lead are used.
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- Plush**. A cloth made of silk and cotton which has a long shaggy pile on the upper surface which is not, like that of velvet, clipped to a uniform length.
- Plutarch**. Greek historian; born, Chæronea, Bœotia, about A.D. 46; died there about A.D. 120; author of the *Lives*.
- Pluto**, god of the under-world, 9-3238
- Plymouth**. Port, naval station and fishing centre in Devonshire, England, at the mouth of the Plym. Plymouth Sound is a splendid anchorage, and it was from here that the Black Prince, Drake, Hawkins, Cook and the Mayflower sailed on their voyages, Drake having been mayor in 1585. Devonport is now part of Plymouth. Many trans-Atlantic liners land at Plymouth.
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- Pneumatics**. The branch of mechanics treating of the properties of gases, at rest or flowing, and of solids immersed in gases.
- Pneumonia**. A disease of the substance of the lung. There are two forms: lobar pneumonia, in the lobes of the lung, caused by the *Diplococcus pneumoniae*; and bronchopneumonia, which affects the mucous membrane lining the smaller bronchial tubes.
- Po River**, Italy, 13-4568
- Pocahontas** (1595-1617). Daughter of the Indian chief Powhatan, said to have saved the life of Captain John Smith. She was kidnapped by an English captain, and while a prisoner married John Rolfe. She went to England with her husband and died there.
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- Pogonia**, orchid, description, 18-6567
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- Pogrom**. A word of Russian origin meaning "political massacre"; especially applied to organized attacks on Jews.
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- Poincaré, Raymond** (1860-). French statesman and writer, became prime minister in 1912 and president in 1913. In 1917 he opened the Peace Conference in Paris. His office expired in February, 1919. He was president of Reparations Commission, but resigned as a protest against leniency to Germany, and carried on a violent press campaign against the policy of the Supreme Council and Lloyd George. In 1922 he was again prime minister, giving French policy a definitely Nationalist trend.
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- Poisonous plants**. Plants which contain poisonous substances in sufficient amounts to make them harmful to the taste or touch of men or animals. Of those poisonous to the touch the poison sumac and ivy are notable; bittersweet, henbane and poke have poisonous seeds; wild cherry and larkspur have poisonous foliage.
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- Poldhu**. The wireless station in Cornwall, England, from which the first wireless message was sent across the Atlantic on December 12, 1901. The message was simply the letter S, and was received by Marconi in Newfoundland.
- Pole, Reginald**, cardinal, mission to England, 5-1817
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- Poles**, see North Pole; South Pole; Magnetic Poles
- Police**. That part of the administration which has to do with the preservation of peace and the prevention of crime. The first modern police force was the London Constabulary appointed in 1828. The system of organization differs in different cities, but the supreme authority is generally in a superintendent or a board.
 * Royal Canadian Mounted Police, 16-5831-38
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- Political economy**, see Economics
- Political parties**. Organizations of citizens for the attainment of policies through united political action. To be found in all democratic countries, they are an accompaniment of popular government. In English-speaking countries the two-party system has been prevalent. In Latin races these parties are likely to split up into groups. Each of the great parties in England, Canada and the United States stands for certain principles. In Canada the Liberals and Conservatives practically hold the field, with the Progressives maintaining a somewhat precarious hold. In the United States the Democrats and Republicans form the great divisions.
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- Poll tax**. A tax levied on all citizens of a given age and sex.
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- Poltava**. Town of the Russian Ukraine, manufacturing leather and tobacco. Here in 1709 Peter the Great defeated Charles XII of Sweden.
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- Pomerania**. Prussian province on the south shore of the Baltic. The ports of Stettin and Stralsund are its most important towns.
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- Pontoon**. In military language, a wooden flat-bottomed boat or other float used in building bridges quickly for the passage of troops.
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- Poona**. Military and industrial centre in the Bombay Presidency, India.
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Is the population of the world still growing? 5-1606
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- Populist Party, or People's Party.** Organized at Cincinnati in 1891 by a national convention made up of representatives of the agricultural and industrial classes. It nominated candidates for the presidency of the United States, carried several state legislatures, and elected many members of Congress; declined after 1900.
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- Porcelain**, *see* Pottery
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- Porpoise**
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- Port**, meaning of term for side of ship, 14-5003
- Port au Prince.** Capital and seaport of Haiti, with a cathedral, a fine harbor, and exports of hides, coffee and logwood.
founding of, 19-7100
- Port Louis**, capital of Mauritius, 9-3184
- Port of entry.** A point that may be designated by the customs administration for the unloading of foreign goods. At first ports of entry were always on the frontier and generally on the seaboard. When shipment in bond went into effect any city might be so named.
- Port of Spain**, capital of Trinidad, 9-3190
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- Port Royal**, Nova Scotia
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- Port Royal**, S. C. Huguenot colony, 1-246
- Port Said.** Egyptian port and coaling station at the north entrance to the Suez Canal. It was founded in 1859. On the western breakwater is a statue of de Lesseps, builder of the canal.
- Port Sudan.** Sudanese import and export centre, being the Red Sea terminus of the railway from Atbara Junction.
- Porter, Jane**, English novelist
- * Scottish Chiefs, quotations and summary, 12-4319-26
- Porter, William Sidney**, *see* Henry, O.
- Portland.** The chief port of the state of Maine; it has a large tourist traffic as well as extensive freight tonnage by rail and water.
- Portland.** Largest city and port of Oregon, with lumber-mills, foundries and canneries. Built on slopes rising into tree-clad mountainsides, with ranges in the distance. The region round is rich in timber, fruit and minerals.
account of, 19-6846
situation, 8-2675
Picture, bridge over Willamette River, 8-2675
- Portland cement**, how made, 7-2305
- Porto Rico.** Fertile West Indian island under American administration; area, 3,600 square miles; capital, San Juan. Sugar, coffee, rice, corn, tobacco and bananas are abundantly produced.
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- Portsmouth.** Chief British naval station, with a naval dockyard covering 300 acres. Standing on a land-locked harbor, in Hampshire, it has been important since the 16th century, and has a large trade. Its Southsea suburb is a popular resort. There is a Roman Catholic cathedral.
- Portsmouth**, seaport of New Hampshire
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- Portuguese East Africa.** Territory administered by the State and the Nyasa and Mozambique Companies, and producing sugar, nuts, ivory, copra, rubber and wax. Mozambique, Quillimane, Beira, and Lorenzo Marques, the capital, are the chief ports.
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- Portuguese man-of-war**, a jellyfish, 19-7065
- Porus**, Indian ruler, and Alexander the Great, 8-2822
- Poseidon**, god of the sea, 9-2225
- Posen**, or **Poznan.** Ancient Polish cathedral city on the Warthe, making agricultural implements and furniture.
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- Positivism**, system of thought, first taught by Comte, 7-2609; 18-6716-17
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- Postal savings banks.** Banks established by various governments through the Post Office Department. First introduced into England in 1861, they have been established in every country. Besides receiving deposits upon which they pay interest they provide annuities and write life insurance, and serve as agents in purchasing government securities.
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- Pot pourri.** French term for a piece of music or a song in which each couplet refers to different things. The English apply the words to a sweet-smelling mixture of dried flowers.
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- Why is it good to boil potatoes in their jackets? 8-2872
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- Potiphar.** Pharaoh's officer, master of Joseph in Egypt.
- Potomac.** American river rising in West Virginia and flowing past Washington into Chesapeake Bay. 400 miles.
- Potosi.** Cathedral city of Bolivia, standing nearly 14,000 feet above sea-level, near famous silver-mines.
- Potsdam.** Suburb of Berlin containing the former residence of the Prussian kings. Here also are the Brandenburg Gate and Frederick the Great's palace of Sans Souci.
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- Sans Souci Palace, 11-4047
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- Passer of the Seasons, 11-4131
- Shepherds of Arcadia, 5-1875
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- Powder River.** American river, rising in the Big Horn Mountains, Wyoming; flows into the Yellowstone River. 400 miles.
- Powell, John Wesley, explored Colorado River, 7-2285**
- Powell River, British Columbia**
- Picture, plant of the Powell River Paper Company, 7-2452*
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- wave transmission, 14-5221
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- Question about.* How is power carried to a distance? 14-5221
- Power of attorney.** A legal instrument authorizing the person named to act as the attorney for the person signing it. A general power of attorney gives authority to act without limitation. A special power limits it to the acts specified.
- Power transmission, Electric, see Electric power distribution.**
- Powers, Hiram, American sculptor, 14-4934**
- Powers, Great.** A term used for the most powerful nations of the world, as Great Britain, the United States, France, Italy, Japan.
- Poynings, Sir Edward, and Irish laws, 8-2935-36**
- Poynter, Sir Edward John, British painter**
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- Poznan, Poland, 13-4692**
- Pictures*
- castle, 13-4689
- Town Hall, 13-4681
- Prætorian guard.** Personal bodyguard raised by Augustus Cesar.
- Prague.** Capital and commercial centre of Czecho-Slovakia, on the Bohemian Moldau. Ancient and picturesque, it contains many medieval buildings, and has a university and an unfinished 14th-century cathedral. Manufactures include machinery, chemicals, linen and cotton.
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- Prehistoric animals**, *see* Animals—history
- Prehistoric man**, *see* Man, Prehistoric and primitive
- Premier**. The first minister of state, the prime or premier minister.
- Preposition**. Indeclinable word showing the relation of a noun or pronoun to some other word in the sentence.
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- Presidents of U. S.**, *see* United States—Presidents
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- Press**. The art of printing; hence those who are engaged in printing and publishing, and particularly applied to newspapers and other periodical publications.
- Pressburg, or Bratislava**. Danube port and ancient cathedral city of Czecho-Slovakia.
capital of Slovakia, 17-6342
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- Pressure**, sense of, in skin, 4-1420
- Pretender, the Old**, *see* Stuart, James Francis
- Pretender, the Young**, *see* Stuart, Charles Edward
- Pretoria**. Capital of Transvaal and of the Union of South Africa. It is finely built, and has a cathedral. Diamonds are mined near by.
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- Priapus**, in mythology, 9-3237
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- Priestley, Joseph**, English chemist, 16-5804
- Priestman, Bertram**, English painter, 8-2860
- Primary Election**. Elections held either to choose delegates to nominating conventions, or else to choose a candidate directly. Generally only party members are entitled to vote in the primaries, though in some states the non-partisan primary is in use and the whole electorate may take part in selecting candidates. Primary elections have been regulated by law only since about 1900. By 1915 the direct primary had come to be almost universal in selecting either state or local nominees, or both, throughout the United States.
- Primate**. A title in some of the Christian churches applied to a bishop, because he is first
- Primate (continued)**
in a province or group of provinces. In England the Archbishop is primate of all England. The title of primate is also given to several bishops of the Church of England in a number of the British colonies.
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- Primrose Family**, in botany, 13-4875
- Primus berry**, how developed, 4-1388
- Prince**. A title first applied to senators of the Roman State, and later applied to persons having kingly power. In some parts of Europe the title "prince" is in use, but not that of king. In England the word is practically limited to members of the royal family, though by the laws of heraldry a duke has the right to be so styled.
- Prince Edward Island**. Island province of eastern Canada; area, 2,184 square miles; capital, Charlottetown. Silver fox breeding is important, there being more than 300 fur farms.
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- Prince Hal**, nickname for Henry V, of England, 5-1684
- Prince of Wales**, *see* Wales, Prince of
- Prince of Wales, Cape**
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- Prionodura**, bird, arranges bower, 8-2896
- Prism**
and rainbow colors, 8-2742, 2881
breaks up light into colors, 11-3922
how colors are bent, 16-5810-11
- Prisoner's base**, game, 3-1153
- Prisoners of war**. Formerly the property of their captors, who might do with them as they wished. Ransom helped matters a little, and humane

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Prisoners of war (continued)

feeling to-day has materially bettered the lot of such prisoners, who are classed as lawful combatants. Though the prisoner of war has no protection against the laws of the state, he is protected by the international laws, first laid down by the Brussels Conference in 1874, against injury to his person.

Prisons. Originally looked upon as houses of detention only, such as the Tower of London, the Bastille in Paris, but since the early 17th century used as places for the punishment of crime. At first conditions were very bad, but the reform movement led by John Howard brought about many improvements as regards the housing of prisoners, etc., and prisons began to be looked upon as a possible means of reformation. Prisons include lock-ups, jails and prisons proper, as well as reformatories for younger delinquents.

Privateers, definition, 4-1170

in American Civil War, 7-2438

in American Revolution, 4-1170; 17-6325

Privet, bush, 11-4019

Picture, fruit (in color) 11-4021

Privy council. In the United Kingdom, a body of persons forming the private advisers of the British sovereign. Such a council dates back to very early times. At the present day it consists of men of distinction, but its duties are now largely taken over by the Cabinet.

Probate. In law, the official proof or establishment of wills and testaments.

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Progressive games, *see* Games—progressive

Progressive party, U. S., in 1912, 8-2672; 19-7198

Projectiles. Objects thrown forward by an impulse of short duration; in early days stones were thrown from the hand; with guns came the use of stone bullets, then iron. An elongated heavy projectile was found to overcome the resistance of the air best. When smooth-bore guns were in use there were many kinds of projectiles—solid shot, hot shot, bar shot, chain shot, shell, shrapnel, etc. To-day, with rifled bores, projectiles are of three kinds—armor-piercing shell, common-shell and shrapnel. There are, besides, special air projectiles, hand grenades, illuminating shells and bombs.

Prometheus, the Titan who stole fire from Olympus for man, 9-3228

and Pandora, 9-3233; 14-5259

Promissory note. A written instrument containing an unconditional promise to pay a certain sum of money on demand or at a fixed future time. If made payable to payee or bearer, it can be transferred to another. If the payee is named, his endorsement is necessary to its negotiation.

Prongbuck, animal, 4-1444

Picture, 4-1445

Pronoun. A word which stands instead of a noun. There are personal pronouns, as *I, we, he*; reflexive pronouns, as *ourselves, himself*; demonstrative, as *this, that*; interrogative, as *who? which? what?*; relative, as *who, which, what*.

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Proportion. In mathematics, the equality of ratios. The ratio of 12 to 3 is equal to the ratio of 8 to 2, so that $12 : 3 = 8 : 2$ is a proportion. If one quantity varies directly as another, the two are *directly* proportional. If one quantity varies inversely as another, the two are *inversely* proportional.

in architecture, 15-5341-42

Proportional representation. A system of voting designed to secure that the various political opinions of the electorate shall be fairly represented in the body of persons elected. The basis of the system is the transferable vote, each elector being allowed to vote for more than one candidate in order of preference, surplus votes being divided.

Proserpina, in mythology, 9-3238

Prospero, character in *The Tempest*, 3-986

Protective coloration, *see* Adaptation to environment

Protectorate. A relation established by treaty between a stronger and a weaker state, in which the weaker state is protected from hostile dictation and invasion in return for a more or less surrender of its internal control.

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Proton, hydrogen nucleus, 12-4291

Protoplasm

* living matter, 2-663-64

effect of poisons on, 4-1232

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Protozoa. The single-celled animals whose bodies are composed of protoplasm. They are microscopic in size, reproduce by self-division, are sometimes naked, sometimes clothed with a calcareous shell. The ameba and infusoria are typical. They can absorb and digest food, can move by contraction, or by little hairs, or muscles. They occur rarely on land, generally in still, fresh and salt water.

Provence. Beautiful old French province bordering the Mediterranean. The Greeks early established a settlement at Massilia, the modern Marseilles, and later Provence was for centuries under Roman rule, there being splendid Roman remains at Arles, Orange and Fréjus. Aix is celebrated for its Roman baths, while Avignon was once the seat of the French popes; Marseilles and Toulon are the chief French Mediterranean ports.

early literature, 17-6149

Proverbs, games, 15-5598

Providence, Capital of Rhode Island, making jewelry, textiles and machinery. A cathedral and university city, it is also a great port.

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Proxima Centauri, star, 11-3784

Proxy. The agency of one person acting for another, usually in public bodies.

Prudhon, Pierre Paul, French painter, 6-2080

Prunes, account of, 6-2064

Prussia. Largest state of Germany, occupying nearly the whole of the north of the country. Originally consisting only of East Prussia and Brandenburg, its dominions grew rapidly, and it now includes the great provinces of Silesia, Pomerania, Schleswig-Holstein, Rhenish Prussia, Hanover and Westphalia, with part of Saxony. Its capital is Berlin. Area, 113,157 square miles.

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- Public health, and milk inspection, 7-2326**
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- Public utilities.** A term used to denote a service which supplies for profit certain wants of the public, such as the use of routes by land, water or air. Included are: the use of steam and electric railways, water transportation, express service, telegraph and telephone, light, heat and power, and public water supply.
- Publius Decius Mus, see Decius Mus, Publius Puccini, Giacomo, Italian musical composer, 19-6925**
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- Pucelle, La.** Old French name for Joan of Arc, meaning "the Maid." In Shakespeare's Henry VI, Part I, she is called Joan la Pucelle.
- Pudding-stone, rock, 17-6386**
- Pueblo Indians**
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- Puget Sound, note and picture, 18-6431**
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- Pulaski, Casimir, Count (1748-79).** Polish-American soldier. After taking part in an insurrection he escaped from Poland and entered the American army in 1777; killed in attack on Savannah, 1779.
- Pulaski, Edward C., saved lives in forest fire in Coeur d'Alene, 8-2808**
- Pull of the earth, * 14-5177-81**
- Pullman, George M., invented sleeping car, 19-7212**
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- Pullman sleeping car. *Picture*, 2-415**
- Pulmotor.** A mechanical device for carrying on prolonged artificial respiration. Used for victims of electric shock, drowning, asphyxiation, and for the resuscitation of newborn infants. The chief types are: the pulmotor when inspired air contains 60 per cent oxygen; the Brat apparatus using pure oxygen; the lung motor; and the salvator.
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- Punctuation marks**
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- Punic Wars, between Carthage and Rome, 4-1194-96**
- Punishments in American schools, colonial period, 3-968**
- Punjab, Indian northern province in the plain of the Indus; area, 100,000 square miles; capital, Lahore. The rainfall is scanty, but by means of irrigation canals vast crops of cereals, cot-**
- Punjab (continued)**
 ton, oil-seeds and sugar are produced, while rock-salt is a great source of wealth. More than half the people are Moslems, and more than a third Hindus, the Sikhs numbering about 3,000,000. Amritsar, Ambala, Simla and Multan are among the towns.
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- Pupin, Michael Idvorsky**
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- Purbeck marble, use in sculpture, 13-4853**
- Pure-Food Laws.** Laws passed by the Congress of the U. S. in June, 1906, prohibiting adulteration, misrepresentation, and the misuse of preservatives in the preparation of foodstuffs and drugs. The law is administered by the U. S. Department of Agriculture, aided by the Treasury Department and the departments of Commerce and Labor.
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- Puss in the corner, game, 8-2743**
- Pussy toes, flower**
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- Pussy willow, description, 17-6273**
- Putnam, Israel (1718-90).** American soldier, born in Massachusetts, but a resident of Connecticut. He served in French and Indian War, Pontiac's War, and in Revolution.
 at Bunker Hill, 4-1164
Picture, portrait and note, 4-1165
- Putrefaction.** The decomposition, by the agency of bacteria, of organic matter, especially proteins, with the formation of ill-smelling products.
- Putty.** A kind of cement, usually of whitening and boiled linseed oil, beaten to the consistency of dough, and used in fastening glass in sashes, for stopping crevices and so on.
- Puvis de Chavannes, Pierre, French painter**
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- Pyrethrum**. *Picture*, flower (gravure) 19-7175
- Pyrite** (FeS₂). An iron disulphid that crystallizes in the isometric system. It is of a brass-yellow color with a metallic lustre, and occurs in rocks of every age and kind. Pyrite is used chiefly in the making of sulphuric acid and green vitriol.
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- Quantum**, energy from electron, 16-5809
- Quarries**
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- Quarter days**. In England, Wales and Ireland, the days marking the four quarters of the year: Lady Day, March 25; Midsummer Day, June 24; Michaelmas Day, September 29; and Christmas Day, December 25. In Scotland the quarter days are Candlemas, February 2; Whitsun, May 15; Lammas, August 1; and Martinmas, November 11.
- Quarter-deck salute**, why it is done by British sailors, 4-1354
- Quartz** (SiO₂). The most common of all minerals, forming 12 per cent of the earth's crust. It is hard enough to scratch glass and may be colorless, milky, smoky, yellow, amethyst, rose, green, etc., with a glassy lustre. Uses: to make glass, as ornamental stones, as prisms in optical work, etc. Quartz veins in the earth often contain rich gold deposits. It is found in all granites.
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- Quassia**, drug from bitterwood tree, 8-2911
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- Quebec**. Largest Canadian province, on both sides of the St. Lawrence; area, 594,434 square miles; capital, Quebec. It was first visited by Cartier in 1535, Quebec City being founded by Champlain in 1608, and existed as a French colony up to 1763; five-sixths of the people are of French descent, speaking French. The chief industries are dairying, lumbering, mining, manufacturing and paper-making, the forest resources being enormous; 175,000 square miles are said to be still untouched. The world's largest supply of asbestos is produced here, while Montreal is the largest city and chief export centre in the Dominion.
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- Queensborough Bridge**, N. Y. city, 1-29
- Queensland**, Australia
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- Queenston Heights, Battle of**. In the War of 1812. Canadian troops numbering about 2,000 defeated an American force of 6,000.
- Queentown**, Ireland. *Picture*, 8-2933
- Queer and lowly creatures**, * 19-7059-69
- Queer plants**, * 9-3261-68
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- Quercia**, Jacopo della, Italian sculptor, 13-4606
- Quesada**, Gonzalo Jimenez de, Spanish adventurer, 19-6862
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- Queues**, long braids worn in China, 2-436
- Quezal**, bird, 9-3370-71
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- Quiberon Bay, Battle of**. Naval engagement between the British under Hawke and the French, in 1759, during the Seven Years' War. Risking his ships among uncharted rocks while a gale was blowing, Hawke chased and attacked the French and utterly destroyed their fleet, thus preventing an invasion of England and giving England the command of the sea. Quiberon Bay is a small arm of the Bay of Biscay.
- Quicksand**
Question about. What is the cause of quicksand? 9-3102

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Quicksilver, or mercury (Hg). The only metal that is liquid at ordinary temperatures. It is a heavy tinny-white metal with a tendency to separate into globules. It amalgamates easily with other metals. Although mercury sometimes is found uncombined, the main supply for commerce comes from cinnabar (sulphid of mercury), a cochineal-red mineral. Spain, Austria and the United States have been the big producers, so far, of this metal.

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Why does iron float on mercury and not on water? 16-5845
Why does quicksilver roll up into little balls? 2-688
Why does quicksilver run away when we touch it? 3-879

Quid pro quo. Latin expression for value for value, or value in return. Literally, "what for what."

Quill pens, notes and pictures, 10-3549

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Quinine, medicine, 8-2909-10

Quinsywort, flower

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Quintianus, governor of Sicily, and St. Agatha, 6-1997

Quintilian, Marcus, Roman teacher, 14-5247

Quitclaim. The simplest form of transfer of a freehold, deriving its name from the ancient instrument of release whose words were "remise, release, and forever quitclaim." In many states it answers the purpose of either a release or a grant.

Quito. Capital of Ecuador, standing over 9,000 feet above sea-level among lofty volcanic mountains. It has a cathedral and a university, and manufactures textiles, leather goods and jewelry.

Quo vadis? Latin for "whither goest thou?"

Quoits, Garden, game, 10-3769

Quorum. The Latin for "of whom." A legal and parliamentary term denoting the number of members of private and public corporations necessary for the transaction of business. In private corporations the number is fixed by the charter; in legislative assemblies by the Constitution, though sometimes left to the determination of the assemblies themselves.



Ra (or Re), Egyptian sun-god, 3-810, 815

Rabbit, in picture frame, 4-1393

Rabbi. The Hebrew for "my lord." An honorary title applied to Jewish teachers of the law. In the time of Christ the title was used merely as a term of respect, but later it was restricted to those authorized to decide ritualistic and legal questions.

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Radio waves, explanation of, 17-6364

Radiograms, notes with pictures, 17-6371

Radiolaria. A group of microscopic animals forming an order of rhizopodous Protozoa. Found in the surface water of the ocean after death, their beautiful shells fall to the bottom and form "radiolarian ooze." They supply food for countless minute animals, which in turn supply the fishes.

Radishes, 7-2624

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sea radish (in color), 14-4981

wild radish (in color), 15-5611

Radisson, Pierre Esprit (1620-1710?). French adventurer and explorer who explored North America as far west as the Mississippi and as far north as James Bay. Offered his service to the English and led an expedition into Hudson Bay. This was the start of the Hudson's Bay Company.

Radistchev, Alexander, Russian author, 19-6906-07

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Ragusa, or Dubrovnik. Ancient port of Dalmatia, Jugo-Slavia, having been Greek, Roman and an independent republic. It has a cathedral and many medieval buildings.

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Ragweed. *Picture,* 9-3396

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- Rainfall**, *see* Rain
- Rainier, Mt.**
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- Rajah.** Originally a title of the princes of India who governed a territory; later a title given by native governments; and last by the British Government to Hindus of rank. Native princes are now frequently called Maharajah, or "Great King."
- Rajmahal, India**
Picture, heights overlooking Banas River (graveure), 8-2829
- Rajputana.** Group of 21 native states in central India; area, 130,000 square miles; chief towns, Jaipur and Ajmere. In the northwest is the Thar desert, the people being pastoral and nomadic, but cereals and oil-seeds are grown in the south.
- Rajputs**, warrior caste of India, 8-2821
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- Raleigh.** Capital of the State of North Carolina. It is a large cotton and tobacco market. Among its manufactures are cotton goods, yarn, hosiery, underwear, structural iron, agricultural implements, cotton oil, fertilizers and woodenware. named for Sir Walter Raleigh, 17-6337
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- Rands, William Brighty**, *see* Poetry Index for poems and notes
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- Rangoon**. Capital of Burma and fourth largest Indian port. The export centre for the Irrawaddy valley, it has an immense trade in rice, teak, cotton, hides, and especially oil. Here is the Shwe Dagon pagoda.
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- Ratio**. From the Latin for "reckoning." The relation between two similar quantities in respect to how many times one makes so many times the other.
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Pied Piper of Hamelin, by Browning, 1-224
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- Rats, Kangaroo**, *see* Kangaroo rats
- Rattan**. A genus of East Indian and tropical African palms with reed-like pointed stems sometimes several hundred feet long. Used for making bridges, plaited work, and chair-bottoms in native countries, and exported under the name of cane. The fruits of some species are good for food; another gives very fine "dragon's blood."
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- Re (or Ra)**, Egyptian sun-god, 3-810, 815
- Reaction**. In psychology, a term used to denote response to stimuli of the senses; in chemistry, the mutual action of chemical agents upon one another; in dynamics, a force called into being along with another force, being both equal and opposite to it.
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- Read, T. Buchanan**, *see* Poetry Index for poem and note
- Reade, Charles**, English novelist, 11-3894
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- Reading, Rufus Isaacs, 1st earl of**
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- Reading**. Iron- and steel-manufacturing city in Pennsylvania in an important coal-field.
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- Reading**
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- Real estate**. Land, including whatever belongs with it, as minerals, water, trees, buildings, fences, etc. It descends to the heirs of a deceased owner.
- Real master of the body**, * 11-4065-68
- Realms of gold**, * 1-79-81
- Reaping**, invention of machinery for, 19-7210-11
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- Reason**. An idea acting as a cause to confirm a belief or induce an action; also used for the intellectual faculty of logic.
Question about. Is there a reason for everything that happens? 16-5740
- Reaumur thermometer**. A thermometer used largely in Germany and Russia. The scale between the freezing and the boiling points is divided into 80 degrees, zero being the freezing point.
See also 7-2648
- Rebellion**. War waged against a government by some of its citizens for the purpose of changing its composition, constitution or laws. In English history the Great Rebellion was the opposition to the Stuarts between 1642 and 1660; in United States history, the Civil War.
- Recall**. To summon or cause to return or be returned, as to recall an ambassador, or a decree.
- Récamier, Madame**
Picture, portrait, by David, 6-2078
- Receipt**. A written acknowledgment of having received something specified, with date, source, signature and such other particulars as the case requires. Receipt also written "recipe."
- Recipes**, *see* Cooking—recipes; Candy—recipes
- Reciprocity Treaty**, United States and Canada, 1854-66, 4-1488
- Reclamation Act**, U. S., aided irrigation, 7-2546
- Reclamation service**. A department devoted to the improvement of land for agricultural purposes by draining or irrigation.
- Reconstruction**, after American Civil War, 7-2444
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- Records of talking machines**, *see* Talking machines—records
- Recreation**. For list of main articles, *see* 20-7639
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- Rectangle**. A parallelogram which has four right angles.
- Rectum**, in body, 6-2085
- Red cedar**, or *savin*. A tree native to North America. It grows in sandy or rocky places from Lake Champlain to the Gulf of Mexico. Conical in form, it has horizontal branches, very

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- Red cedar** (*continued*)
small leaves and small bright blue berries.
Used for lead pencils, fence-posts, etc.
- Red Cross**
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- Red-hot-poker**, flower, 19-7172
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- Red Indian paint**, *see* Bloodroot
- Red Indian paint brushes**, *see* Painted cups
- Red-letter day**. Saint's day or festival of the
Church marked with red in the calendar; also
any day happily memorable in the life of an in-
dividual.
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- Red may**, variety of hawthorn, 12-4384
- Red-rattle**, Marsh
Picture (in color), 16-5882
- Red Riding-Hood doll**, how made, 2-516-17
- Red River**. An American river rising in the
Staked Plain, Texas, and flowing into the Mis-
sissippi River, 1,200 miles.
- Red River**. A navigable river rising in Lake
Traverse, Minnesota. It crosses the international
boundary between the United States and Can-
ada, flows through Manitoba and empties into
Lake Winnipeg. Its length, from its American
source to its Canadian mouth, is 700 miles.
- Red River**, Canada
 Riel rebellion of 1869-70, 4-1489
- Red River hog**, 5-1722
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- Red Sea**. Arm of the Indian Ocean stretching
1,500 miles from Suez to the Strait of Bab-el-
Mandeb. Its shores are arid and infertile, but
since the opening of the Suez Canal it has be-
come the chief route from Europe to the East.
Suez, Port Sudan, Suakin, and Jiddah, the pil-
grimage port of Mecca, are its chief ports.
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- Reedlings**, Bearded, birds
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- Referendum**. In politics, the referring of the
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- Reflection**
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- Reflex action**, explanation, 7-2612; 17-6289
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- Reform Bill**, 1832. English parliamentary
measure which disfranchised rotten and pocket
boroughs and gave members to large boroughs
like Birmingham and Brighton. It also made
other needed electoral reforms.
 foundation of popular government, 7-2298
- Reform schools**. Penal institutions for young of-
fenders where punishment is made secondary to
reform. For both young men and young women
there is constant training, physical, mental
and industrial, to enable the prisoner to stand
alone after his or her release, which is often
made dependent upon progress made.
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- Regent**. One who is given authority in the ab-
sence, minority or disability of the king; in the
old universities a doctor who takes part in in-
struction or government; in the state of New
York a member of the body known as the Uni-
versity of the State of New York.
- Regiment**. The largest permanent association
of soldiers, consisting of any number of battal-
ions according to the country and the arm of the
service. It is the third subdivision of an army
corps, several regiments forming a brigade, and
several brigades a division.
- Regina**. Capital and commercial centre of the
Canadian wheat-growing province of Saskatche-
wan.
 history, 4-1490
- Registration**. The act of recording in a regis-
ter, such as the registration of deeds, of births,
deaths and marriages, and the registration of
votes. In the United States, Canada and Eng-
land this last requires voters to register their
names in books provided for the purpose in each
election district, so as to prevent frauds.
- Regulus**, Roman senator
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Repin, Ilya (or Elias) Yefimovich, Russian

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Letter to the Sultan, 16-5697

Replevin. An action brought to recover possession of goods unlawfully taken or detained. A writ is issued for the seizure of the goods, and the plaintiff is required to file a sufficient bond to cover any damages that may result to the defendant. The defendant must return the goods if possible and does not have the option of paying their value instead.

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Republican Party. One of the major political parties of the United States, organized 1854-56. It was organized to fight the extension of slavery, and nominated John C. Fremont for president in 1856. Because of Democratic division it elected Lincoln in 1860. Since the Civil War it has been on the whole the party of conservatism, favoring a protective tariff, "sound money" and territorial expansion. It must not be confused

Republican Party (continued)

with the Republican party of Jefferson. *See* Democratic Party.

organized, 7-2429-30

Research bureaus in stores, 10-3674-76

Reservoirs. Places where things are kept in storage; generally applied to large receptacles for fluids or gases, as the reservoirs where water is stored to supply a city. Crude oil is also kept in tanks or reservoirs.

for New York water supply, 14-5055-60

Resin, or rosin, product from pine, 9-3151

Resolute, ship. *Picture*, 12-4414

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Rest-harrow, flower

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Retainer. One who is kept in service, an attendant. In law, the employment of a lawyer to prosecute or defend an action or represent a person. Also applied to the fee paid to a lawyer at the first consultation in order to secure his services, and forming a part of the whole fee.

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Reval, or Tallinn. Capital and chief port of Esthonia, exporting flax and cereals. There are a cathedral and medieval guild-houses.

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Paul Revere's Ride, by H. W. Longfellow,

15-5649

Song of Marion's Men, by W. C. Bryant,

11-4032

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Revolution, French, *see* France—history—Revo-

lution

Revolver. A revolving firearm, specifically a pistol, which formerly had a barrel provided with a number of bores. To-day it has a single barrel with a revolving cylinder at the base containing a number of chambers which are brought automatically into relation with the firing mechanism for rapid fire. Six is the common number of chambers. The first practical revolver was made by Colonel Colt in the United States.

Reykjavik, capital of Iceland, 15-5298

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- Rhebok**, animal, 4-1444
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- Rheims**, or **Reims**. A city of Champagne, France, with a great trade in wine and an extensive textile industry. Its Gothic cathedral was irreparably damaged by the German bombardments, 1914-18, but the main structure is still standing.
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- Rhetoric**. The art of using technical means for influencing the minds, imagination and actions of others by the use of language. It is the art of oratory, including both composition and delivery; it is also written composition and recitation.
- Rheumatism**. An acute or chronic disease characterized by local inflammation. It may involve the joints or the muscles. Common in moist and temperate climates, it is generally considered due to some toxin produced in the system. Exposures to wet and cold and sudden chilling bring it on. For the treatment of acute rheumatism rest in bed is imperative, with strict control of diet and application of heat. Chronic rheumatism is best treated locally by friction with stimulating liniments.
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- Rhode Island**. The smallest state in the Union; area, 1,248 square miles; capital and largest city, Providence. Textile-manufacturing is the leading industry, and jewelry is important. Abbreviation, R. I. Nickname, "Little Rhody" or "Plantation State." Flower, violet. Motto, "Hope." First settlement, Providence, 1636.
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- Richmond**. Capital of Virginia, trading largely in tobacco; varied industries. The capital of the Confederacy in the Civil War, it has many

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- Riemenschneider**, sculptor of Wurzburg, 13-4699
- Rifle**. A firearm having a barrel with a spirally grooved bore, which imparts to the bullet a rotation whereby its flight is rendered more nearly accurate. Formerly muzzle-loaded, then breech-loaded and now self-loading, the hunting rifle of to-day, though differing in detail, is practically of one type.
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- Riga**. Capital of Latvia, on the Dwina. A cathedral city and a great commercial centre and port, it manufactures cottons, tobacco, hardware, glass, paper and jute.
- Rigaud, Hyacinthe**, French artist, 5-1876
- Rigel**, star, 11-3786, 3924
- Riggs, Mrs. K. D. Wiggin**, see Wiggin
- Right of way**. In law, the right to pass over land. Also denotes the path or road over which a right of way may be exercised. Twenty years open exercise of a right of way makes it permanent.
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- Rio Grande**, a river in the southern part of North America. Rising in southwestern Colorado, it flows south across New Mexico, then southeast to the Gulf of Mexico, forming the boundary between Texas and Mexico. Near its mouth are Brownsville, Texas, and Matamoros, Mexico. Much of its water is drawn off for irrigation in New Mexico. The river is 1800 miles long and can be navigated by small boats for about 450 miles from the mouth.
- Riot**. A form of criminal offense against the public peace when three or more persons meet to act violently and tumultuously. In common law the offense is a misdemeanor; if it causes loss of life or serious bodily injury, it is a felony. If the riotous enterprise is directed against the government, the offense is treason.
- Rip Van Winkle**, by Washington Irving, extracts, * 12-4481-85; 13-4559-62
- Riparian rights**. The rights under the law of owners of land containing a watercourse or bounded by one, to its banks, bed and waters. In common law the rights of an owner adjacent to water extend to the middle of the stream; those of an owner whose land contains a stream are absolute unless they inflict injury on other riparian owners.

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- Rochefort**, Belgium. *Picture*, 15-5504
- Rochester**. The third largest city in New York
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 see River. The city is well laid out, with many
 parks and fine buildings. Its chief manufac-
 tures are photographic apparatus, optical instru-
 ments, boots and shoes, ivory buttons, carbon
 paper and typewriter ribbons.
- Rochester**, England
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- Rock cook**, fish
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- Rock salt**, or massive salt. Occurs in sedimentary
 rocks as shales or sandstones. It is the
 chlorid of sodium called halite, and contains
 60.41 per cent of chlorine and 39.50 of sodium.
 In the United States most productive deposits
 are in New York, Pennsylvania, Virginia, West
 Virginia, Ohio, Michigan, Illinois, Kansas, Loui-
 siana and Texas. In Canada, near Windsor,
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- Roman numerals**. In the Roman system (for
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 the value of the symbol is reduced by placing
 before it one of a lower order (IV = 4, XC = 90);
 and the effect of a bar over the numerals is
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- Rotten boroughs**. In Great Britain certain municipalities which had had the right of returning a member to Parliament lost their population, or fell under control of members of the nobility and acted in elections only according to their wishes. These were disfranchised by the Reform Bill of 1832.
- Rotterdam**. Busiest port of Holland, with splendid quays and docks. It exports linen, flax, cattle and dairy produce, and has shipbuilding, sugar-refining, metal and chemical industries.
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- Royal George**, ship, 11-3918
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- Royal Oak, The**. The name given to the oak of Boscombe in which Charles II hid himself after the battle of Worcester in 1657.
- Royal Society**. Organized in London in 1660, one of the oldest scientific societies in Europe. Its present home is Burlington House. It awards four medals every year, one Copley for philosophical research, two Royal for the two most important contributions to science within the British dominions, and the Davy for the most important discovery in chemistry in Europe or British America.
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- Roybet, Ferdinand**, French painter, 8-2858
- Royce, Jos'ah** (1855-1916). American philosopher, born at Grass Valley, Cal. Graduated from University of California, and after further study taught at Harvard. He published many books, and was a member of many learned societies.
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- Ruble**. Russian silver coin of the value of 100 kopecks, the unit of Russian coinage.
- Rubic**. Special passage in a book written in red; particularly directions for conduct of worship in liturgies, so printed as to be easily distinguished.
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- Ruhr.** German tributary of the Rhine which contains in its basin the coal-mining district of Westphalia. Here are the industrial towns of Dortmund, Bochum, Essen, Mülheim, Duisberg and Ruhrort.
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- Rumanians.** A people of very mixed race who speak a language of mixed Latin and Slavonic origin. Many Roman colonists settled in Transylvania and Moldavia, especially in the 13th century, on the break-up of the Byzantine Empire, but the Huns, Finns, Magyars and Slavs occupied these regions formerly. The nation to-day sets store by its Latin origin.
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- Rumsey, James,** and invention of steamboat, 17-6398
- Runeberg, Johan Ludvig,** Swedish poet, 19-7014
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- Runes,** from the Old Norse and Icelandic for letter, writing, secret, mystery. The alphabets used among the ancient Scandinavian peoples. The name is especially applied to letters carved on weapons or on stones which are found in Scotland and Ireland and in other maritime regions of Europe as well as Scandinavia. It also is used for a short sentence of mystic meaning which holds some of the wisdom of old philosophers of the Northlands.
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- Rupee.** A silver coin of India divided into 16 annas of 12 pies and worth about 32 cents.
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- Russian language,** origin of alphabet, 10-3548
- Russias.** Divided into Great, Little and White Russias, this Slav nation is the most numerous next to the English. The vast majority are peasants. Those in Siberia are the best type. As a race they have assimilated the Mongol elements which existed previously in Eastern Europe.
- Russo-Japanese War,** 16-5696
- Russo-Turkish War.** The war in 1877-78 in which Russia tried to extend her dominions toward the Mediterranean. Russia was successful, and the Treaty of San Stefano was signed March 3, 1878. But the European powers were unwilling to allow Russia the additional territory gained, and a congress was called at Berlin for a new settlement.
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- Rustic furniture,** how to make, 13-4736
- Ruthenes.** Also known as Ruthenians, Red Russians, or Rusniaks, this Slav people inhabit East and Central Galicia, North and West Bukovina, a part of Poland, and the valleys of the Carpathians in the east of Czecho-Slovakia. They are a very poor and backward peasant people.
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- Ruyter, Michael de.** The greatest Dutch admiral; born, Flushing, 1607; died, Syracuse, Sicily, 1676; sailed up the Thames and Medway in 1667.
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Sable Island. A dangerous island off the coast of Nova Scotia. It has been called the "Graveyard of the Atlantic" because of the ships wrecked on its shore.
Sabotage. French word implying deliberate damage to material, machinery and so on by men on strike, with the object of injuring their employers and bringing them to terms. The word (from *sabot*) originally meant "shoemaking."
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Sacajawea (1790-1844). A squaw of the Shoshone tribe who rendered great service for the Lewis and Clark Expedition across the continent. A peak in the Bridger range is named for her.
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Sage-brush. A dry, shrubby and bushy plant (botanical family, *Artemisia*), found on the dry and alkaline areas of the western United States. Some species grow as high as twelve feet. Though in appearance sage-brush resembles sage, it is not connected with that family of plants.
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Sago. A starchy food obtained from the spongy and glutinous interior, or pith, of the trunks of several kinds of palm trees.
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St. Denis. Northern suburb of Paris, with flour and cotton mills, chemical and dye works, and manufactures of machinery. Here is a magnificent abbey, the burial place of most of the kings of France.
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St. Etienne. Important industrial town in the second largest French coal-field, 36 miles west of Lyons. It has a great iron and steel industry, besides manufacturing silk, velvet and ribbons.
St. Francis Lake, Canada, 6-1960
St. Francis River. American river, rising in St. Francis County, Missouri; flows into the Mississippi. 460 miles.
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St. George's Channel. Passage separating Wales from Ireland and connecting the Irish Sea with the Atlantic.
St. Germain-en-Laye, Treaty of
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St. Gothard Pass. Highway through the Lepontine Alps between Switzerland and Italy. The railway from Lucerne to Milan is carried beneath it by a series of tunnels with a length of 9 1/2 miles. 6,935 feet.
St. Helena. British island and coaling station in the South Atlantic; area, 47 square miles; capital, Jamestown. Girdled by rugged cliffs rising from 600 to 2,000 feet sheer from the sea, it was the place of exile of Napoleon (1815-21).
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St. Helier. Capital and port of Jersey, with steamship communication with Southampton, *story about*, 11-4092
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- St. John.** Winter terminus of the Canadian Pacific Railroad, at the north of the St. John River, New Brunswick. A flourishing port, it has a fine harbor and docks, besides textile, leather and fishing industries.
- St. John,** island
bought by U. S. from Denmark, 8-2672
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- St. John River.** American river, rising in Brevard and Osceola counties, Florida; flows into the Atlantic Ocean. 400 miles.
- St. John River,** Canada, discovery, 2-679
- St. John's.** Capital and only large town of Newfoundland, with a fine harbor. It has Anglican and Roman Catholic cathedrals, and is the centre of a great fishing industry.
- St. John's-wort,** flower
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- St. John's-wort Family,** in botany, 13-4873
- St. Juste, Antoine**
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- St. Kitts.** British West Indian island forming with Nevis and Anguilla a Leeward Island presidency; area, 150 square miles; capital, Basseterre. Cacao, coffee, tobacco, coconuts and limes are produced, though the interior is hilly.
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- St. Lawrence River**
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- St. Louis.** One of the greatest commercial centres in the U. S. 20 miles below the junction of the Missouri with the Mississippi, in Missouri. The river is crossed here by a bridge 2,225 feet long, connecting the city with East St. Louis. Finely built, the city has three cathedrals and two universities, but is famous chiefly for its great manufacture of tobacco, over 80,000,000 pounds of which are annually produced. Other industries include smelting, meat-packing, publishing, flour milling, foundries, and leather and clothing manufactures.
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Jefferson memorial, note and picture, 17-6047
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- St. Malo.** Picturesque seaport of Brittany, France, surrounded by ancient towered ramparts. It has a considerable traffic with the Channel Islands and Southampton.
- St. Mark's, Campanile of, Venice**
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- St. Mary's River.** *Pictures,* 6-1961, 1963
- St. Nicholas,** magazine
Mrs. Dodge as editor, 14-5015
- St. Omer.** Old town of northern France, with a considerable agricultural trade and some manufactures. It has a magnificent church, once a cathedral, and remains of a 7th-century abbey.
- St. Paul.** Capital of Minnesota, on the Mississippi. Standing opposite Minneapolis, it is an important centre of the cattle and meat-packing trades, while its horse market is the largest in the United States.
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- St. Peter's church, Rome,** 17-6309-10
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- St. Petersburg,** *see* Leningrad
- St. Pierre.** French island off Newfoundland forming part of the colony of St. Pierre and Miquelon. The cod fishery is important.
- St. Sophia,** church and mosque, Constantinople
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* Some famous monks, 13-4859-69
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- Sakhalin, or Saghalien.** Siberian island north of Japan, to whom the southern half was ceded by Russia in 1905. Fishing is the chief industry, but coal and oil are found.
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- Sakkāra,** Egypt, tomb of Thi, 14-5211
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- Salem.** Capital of Oregon on the Willamette River. It is the seat of Willamette University. Region around has fruit, hop and wheat interests.
- Salem, Mass.,** first settlement, 2-548
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- Salerno.** Ancient seaport city of southern Italy, at the head of the Gulf of Salerno. It has a beautiful 11th-century cathedral built by the Normans.
medical school in Middle Ages, 8-2724
- Salic Law.** Law of succession disallowing females the right to occupy the throne. The law is said to be based on a passage in the code of the Salic Franks of the 5th century.
- Salicylic acid.** A compound of carbon, hydrogen and oxygen found in many plants, especially in wintergreen and the sweet birch. This acid has a sweetish-sourish taste, is odorless, slightly soluble in water and very soluble in alcohol. It is used as an antiseptic, as a food-preservative and in the manufacture of dye-stuffs.
- Salisbury, Robert Cecil, 3d Marquis of**
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- Salisbury Cathedral, England,** 16-5969
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- Salisbury Plain.** An elevated plain lying north of Salisbury, Wiltshire, England, now used chiefly for military purposes. 20 miles long and about 15 miles broad, it contains Stonehenge, noted for its Druidical remains. Canada had a training camp here in 1914-15.
- Saliva,** description and uses, 6-1932
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Salt (rock salt, or halite, NaCl). A mineral colorless to white with a glassy lustre. It is usually found in crystallized form with the crystals perfect cubes. Rock salt may be obtained by sinking wells to reach brine springs, pumping out the brine and evaporating it; or it may be mined from the great salt deposits such as those in China or Galicia.
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Salvage. Term meaning the rescue of property from destruction, particularly by fire or total loss at sea. The word comes from the Latin *salvus*, safe.
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Salzburg. Ancient and beautiful Austrian city, on the Salzach. It has a cathedral modeled after St. Peter's at Rome and a Romanesque abbey church. This city was the birthplace of Mozart.
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Samoa. Island group in the mid-Pacific which was divided in 1899 between the United States and Germany. The German islands west of 171° West Longitude were allotted, 1920, to New Zealand as mandatory of the League of Nations and are now named Territory of Western Samoa. Area, about 1,260 square miles. American Samoa includes Tutuila, Manua and four other islands. Area, 102 square miles.
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San José. Capital of Costa Rica. It has a cathedral and is the centre of a rich agricultural region.
San Juan. Capital and chief port of Porto Rico, with a cathedral and a university. Sugar and coffee are exported.
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San Luis Potosí. Cathedral and manufacturing city of Mexico, near great silver-mines.
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- Santo Domingo**. Capital of the Republic of
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- Saskatchewan River**, Canadian river rising in the Rocky Mountains. It flows eastward through Alberta, Saskatchewan and Manitoba and empties into Lake Winnipeg. 1,265 miles.
- Saskatoon**, Agricultural and educational centre in Saskatchewan, Canada, on the South Saskatchewan River.
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- Sault Ste. Marie**, Manufacturing town of Ontario, Canada, on the ship canal connecting Lakes Huron and Superior. It is often called "Soo."
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- Savage, Edward**, American painter
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- Savannah**, Cotton port in Georgia exporting also lumber, cottonseed oil and resin. Historically one of the most interesting cities of the South.
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- Savannah**, first ship using steam to cross Atlantic, 17-6402
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- Savannah River**, American river, formed by the Tugaloo and Kiowee rivers, South Carolina; flows into the Atlantic Ocean. 450 miles.
- Savannahs**, definitions, 6-2171
- Save**, River rising in the Alps of Jugo-Slavia and flowing into the Danube near Belgrade. On its banks Zadar, capital of Croatia. 450 miles.
- Saving**, *see* Theft and saving
- Savonarola, Girolamo**, life, 13-4868-69
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- Savoy**, Lying south of the Lake of Geneva, Savoy is the Alpine district of France, which contains Mont Blanc and the resorts of Chamonix and Aix-les-Bains.
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- Saxony**, Most populous German state, lying between Prussia and Czecho-Slovakia. It is a mining and manufacturing country, with important textile, paper, engineering, chemical, pottery, glass and porcelain industries; coal, lead, zinc, iron and cobalt are mined. Dresden, the capital, Leipzig and Chemnitz are the largest cities.
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- Scantlebury, Elizabeth**, *see* Poetry Index for poem and note
- Scapa Flow**, Wide roadstead among the Orkney Islands which served as the chief base of the British Navy during the World War, 1914-18.
- Scapegoat**, An innocent person who is blamed for the misdeed of another. In ancient Jewish times, on the Day of Atonement, the chief priest symbolically laid the sins of the people upon a goat, called the scapegoat, and this animal was driven into the wilderness. Our present use of the word harks back to the ancient Jewish ritual.
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- Schamyl**, Caucasian leader, 15-5378
- Schedt**, River of France and Belgium draining practically all Flanders. Rising near Le Câtelet, it passes Cambrai, Valenciennes, Tournai, Ghent, Antwerp and Flushing, flowing into the North Sea through several wide channels in Holland. Navigable by a skillful arrangement of locks for 210 miles, it forms with its tribu-

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Schwerin. Old German cathedral city, with an ancient palace; capital of Mecklenburg-Schwerin.

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Sciïly Islands. Group of 36 islands and about 100 islets lying about 25 miles from Land's End, Cornwall, England. The climate is mild and equable, large quantities of fruit, flowers and vegetables being grown for the English market.

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Scot-free. Free from payment, scot being an Anglo-Saxon word meaning "payment." To get off scot-free is to get out of a difficulty at no cost to oneself.

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Scotland, Northern country of Great Britain; area, 29,796 square miles; capital, Edinburgh. It comprises the Orkney, Shetland and Hebridean Islands, and has three distinct physical divisions—the Southern Uplands, Central Lowlands and Northern Highlands, which contain the Grampians and Ben Nevis (4,406 feet). The principal river is the Clyde, in the basin of which is one of the world's greatest industrial regions, with its centre in Glasgow. The Tay and Spey, however, are the longest rivers, while Edinburgh stands on the Forth, and the Tweed has a famous woolen industry. Of the many lakes Loch Lomond is the largest in Great Britain. Scotland has important coal, iron, fishing, ship-building, textile, jute and distilling industries, but the Lowlands are the only thickly populated part. Among the largest towns are Dundee, Aberdeen, Paisley and Greenock. There are 33 counties.

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Scotland Yard. Headquarters of the London Metropolitan police, on the Victoria Embankment. The original site was Great Scotland Yard, where once stood a palace used by the kings of Scotland when visiting London.

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- Scott, Winfield** (1786-1866). American soldier, born in Virginia. He entered the army in 1808 and distinguished himself in the War of 1812; became commander-in-chief in 1841; invaded Mexico; Whig candidate for president, 1852; retired from army, 1861.
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- Scutari**. Largest city of Albania, trading in cotton, wool and skins.
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- Scythe**. A farm implement consisting of a long curved blade attached to a bent wooden handle called a snath, with two hooks which are grasped by the hands of the user. The earliest form of reaping machine.
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- Secession**. In American history, the withdrawal of a state from the Union. Actually there has never been a real secession, as the action of the Southern states in 1860 was unsuccessful.
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- Selenium (Se). A chemical element occurring chiefly in combination with copper, lead and silver.**
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- Self-determination. Right of nationalities to choose their own form of government. The term came into use toward the close of the World War with reference to the Poles and other peoples under rule of a stronger power.**
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- Semites. The family of Mediterranean type in which are included the Arabs, the Himeyarites of Abyssinia, the ancient Assyrians, Aramaeans, Amorites, Philistines, Phoenicians and Carthaginians and the still-surviving Jews. The inscriptions found in the countries inhabited by these races are all in the Semitic languages.**
- Semolina, made in flour mill, 8-2800**
- Sempach, Battle of. Fought in 1386 between 1,500 Swiss and the Austrians under Duke Leopold. Leopold was killed and his forces were routed. In this battle Arnold von Winkelried performed his great act of heroism, breaking the opposing line by drawing the spears of the enemy on to his own breast.**
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- Seneca Chief, first boat on Erie Canal, 13-1884, 1886**
- Senegal. Oldest French West African possession; area, 74,112 square miles; capital, St. Louis. Corn, millet, nuts and gum are produced, and Dakar is a rising port.**
- Serlis, France**
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- September. In our calendar the ninth month of the year, consisting of 30 days. In the old Roman year it was the seventh month, the name coming from Latin *septem*, seven.**
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- Sequoya. Cherokee Indian scholar who gave written language to his people; born near Tuskegee, Alabama, 1760; died, 1843.**
- Seranus, pen name of Mrs. S. Frances Harrison, 14-5109**
- Serapis. An Egyptian god worshiped at Memphis and Alexandria. He was really the dead sacred bull Apis honored under the additional name of Osiris, the name Serapis being made out of Osiris and Apis. Serapis was lord of the underworld in Egyptian mythology.**
- Serbia, or Servia**
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- Sergeant. A non-commissioned officer in the army or in the marines, next higher in rank to the corporal.**
- Sergeant-at-arms. An executive officer in certain legislative bodies who is authorized to keep order in such bodies and has charge of the payment of members. Both Houses in the British Parliament and the Canadian Parliament and the United States Senate and House of Representatives have sergeants-at-arms.**
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 A.D. 250, to a cave in Mount Celion, where they
 slept for 230 years.
Seven Virtues. Faith, hope, charity, prudence,
 justice, fortitude, temperance.
Seven Weeks' War. The campaign from June 8
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 the Bristol Channel. It passes Shrewsbury,
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 Draining 4,350 square miles, it is generally too
 swift for navigation, and has a tidal bore. 210
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Sextant. An instrument of navigation and sur-
 veying, for measuring the angular distance of
 stars or other objects, or the altitude of a star
 above the horizon. Newton was the first in-
 ventor, but his description was not published
 until after his death. Before the publication,
 about 1730, Thomas Godfrey of Philadelphia had
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Shanghai. Greatest Chinese port, near the
 mouth of the Yang-tse-kiang. Exporting chiefly

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silk, tea, sugar, cotton, hides, wool and beans, it does about two-fifths of the whole foreign trade of China, and has a large foreign quarter. description, 2-434

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Shannon. Largest river of Ireland and the British Isles, draining 4,550 square miles. Rising in County Cavan, it flows into the Atlantic by an estuary at Limerick. 250 miles.
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Shaw, George Bernard. Brilliant British dramatist and critic; born, Dublin, 1856. His best comedy is *Candida*. He is an excellent speaker and is renowned for wit and satire.

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Shays' Rebellion. An insurrection in western Massachusetts in 1786-87, under Daniel Shays. The uprising was unsuccessful. Shays escaped.
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Sheep-laurel, shrub, 13-4776
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Sheik. In some Mohammedan countries, especially Arabia, a chief or head of a village or tribe; sometimes a religious chief or elder.
Shekel. A weight and a coin of the ancient Assyrians, Jews, Phoenicians and other peoples. It came to be the chief silver coin of the Jews about 140 B.C. and was worth about 60 cents. Nowadays the word is used as a slang expression for money.
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Sherbrooke, Quebec
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Sheridan, Philip Henry (1831-88). American soldier born in Albany, N. Y. He graduated from West Point, and during the Civil War became distinguished as a cavalry officer.

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Sheridan's Ride, by T. B. Read, 19-6868
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Sheridan, Sir Thomas, tutored Prince Charlie, 15-5640

Sheridan, packet-ship, race of, 11-3919
Sheriff. In Canada and the United States, the chief civil officer whose duty it is to administer justice under court, executive head, or crown order, within a county.

Sherman, James S., vice-president of U. S.
Picture, portrait (grave), 11-3948

Sherman, Roger
Picture, portrait, in group, 4-1167

Sherman, William Tecumseh (1820-91). American soldier, born in Ohio. He graduated from West Point, and served in Mexican War, but resigned from the army to engage in banking and then in teaching; returned to army in 1861 and fought in many of the most important battles of the war; succeeded Grant as commander of peace army in 1869.

march to the sea, 7-2439-40, 2442
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Sherwood Forest. One of the ancient English forests, extending from Nottingham northward to Worksop, and covering nearly 200 square miles. Famous as the retreat of Robin Hood.

Shetland Islands. Scottish group of 30 islands and 70 uninhabited islets in the North Atlantic. They cover 550 square miles and form a Scottish county. Lerwick on Mainland being the capital. Sheep, cattle and Shetland ponies are bred, but the main industry is fishing.

Shetland ponies, origin of, 6-2014
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Shetland shawls, story about, 10-3711-12
Shick Shock Mts., Quebec, 1-108

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Shilling. A coin or paper money varying in value, used mostly by the Anglo-Saxon peoples, with the exception of those in North America, where the decimal system has replaced the old monetary system. The first shilling was issued in the reign of Henry VII. The par value of the present-day English shilling is 24 cents.

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- Shiraz**. Ancient walled city of southern Persia, once one of the chief centres of the Zoroastrian religion.
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Shorthand. A method of writing by means of quickly noted signs or characters so that the hand can keep pace with the speech. The ancient Greeks and Romans had a system but it was lost. In the 16th century the art was revived, but Pitman in 1837 devised the successful system still used with modifications. There are also several later and varying systems, such as the Gregg system.

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Shoshone Falls. On Snake River, Idaho; 210 feet high.

Shoulder-blade, in human body, 5-1676

Shoulder shove, game, 18-6523

Shovelers, ducks, 11-3888

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Shrapnel. A form of shell for use in field guns, invented by General Henry Shrapnel of the British army, who died, 1842. A powder-charge bursts the casing of the shell, which is filled with bullets, at a point before the objective is reached, and the released bits of metal fly onward in a spread-out shower. The distance of explosion is gauged on a time fuse set in the nose of the shell. During the World War shrapnel shells inflicted enormous numbers of casualties.

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Shrewsbury. Capital of Shropshire, England, on the Severn. An ancient place with many picturesque houses, it has a Norman castle and abbey church and a Roman Catholic cathedral.

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Shushak, suburb of Fiume, 17-6348

Siam. Kingdom of southeast Asia; area, 200,148 square miles; capital, Bangkok. Rice is the staple crop, and the greatest exports are rice, teak and tin, Burmese and Chinese doing most of the manual labor. In the present century the country has made great progress, education having been greatly improved and much of the interior opened; a university has been founded at Bangkok. The people are mainly Siamese Buddhists, but there are a million Moslem Malays, and nearly two million Chinese.

Siberia. Immense Russian territory in northern Asia, stretching from the Urals to the Sea of Japan. Nearly 40 times as large as the British Isles, it covers 4,833,496 square miles, while the population only amounts to about 11,000,000, mainly immigrants from Russia. Turkish, Ugrian and Mongolian tribesmen number about 700,000. In the east Siberia is mainly a tableland, with valuable deposits of gold, silver, copper, lead, iron, and coal among the mountains; the west is largely a fertile corn-growing plain, with comparatively dense population in places. The Trans-Siberian Railway stretches 5,700 miles from the Atlantic to the Pacific, from Leningrad to Vladivostok, and steamers ply during the summer on the Obi, Yenesei, Lena and Amur rivers. The north generally is covered with forests and swamps, in which a sparse population of tribesmen live by fishing and hunting; in the far north are 450,000 square miles of inhospitable and bitterly cold tundra, temperatures as low as 75° and 85° below zero having been registered at Verkhoyansk and Yakutsk. The chief towns are Tobolsk, Omsk, Tomsk, Irkutsk, Chita, Blagoveschensk, Khabarovsk, Nikolajevsk and Petropaulovsk.

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settled by convicts, 16-5852

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Siberian Railway, 16-5852

Sibyl, at Cumæ, 6-1988-89

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- Sibylline oracles.** Writings of the first four centuries of the Christian Era modeled on the pagan Sibylline Books as propaganda for Christianity.
- Sic.** Latin for "thus." When used within brackets in English it implies incredulity or contempt in regard to the statement which it follows.
- Sic transit gloria mundi.** Latin for "thus passes worldly glory."
- Sicilian Vespers.** Massacre on Easter Monday, March 30, 1282, of 8,000 Frenchmen in Sicily by natives of the island.
- Sicilians.** Originating from a race of Mediterranean type coming from North Africa, the Sicilians of to-day are a very mixed people; Greeks, Phoenicians, Romans, Vandals, Normans, Arabs, French and Spaniards having settled in this island.
- Sicily.** Largest island of Italy and the Mediterranean; area, 9,935 square miles; capital, Palermo. The chief industries are fruit-growing and the sardine and tuna fisheries, though Mount *Ætna* is the chief source of the world's sulphur supply. Palermo, Messina, Catania, Trapani and Marsala are important ports; Syracuse and Girgenti abound in antiquities. Occupied in turn by Greeks, Carthaginians, Romans, Franks, Goths, Byzantines, Saracens, Normans, Angevins and Aragonese, Sicily has had the most eventful history of all Europe.
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- Sickle,** description, 19-7210
- Sicklebills,** birds, 9-3288
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- Siddons, Mrs. Sarah Kemble**
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- Sidewalks,** concrete, how made, 7-2306
- Sidewinder,** rattlesnake, 15-5416
- Sidney, Sir Philip.** English poet and soldier friend of Edmund Spenser. 3-1119
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wrote *Arcadia*, 4-1477
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Picture, giving water to wounded soldier, 6-2006
- Sidon,** sarcophagus of the Weepers, 12-4459-60
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- Siege.** A military manoeuvre in which a strong force encamps around a fortified city or place, and by cutting off supplies as well as by aggressive tactics tries to make the defenders submit.
- Siegfried,** hero in German literature, 17-6266
- Siemens, Sir Charles,** inventor
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- Siemens, William,** inventor, 19-7207
- Siena.** Famous city of Tuscany, one of the earliest centres of Italian Renaissance art. It is situated on three hills, the streets being winding and picturesque. Noted for straw-plaiting and trade in oil and wine. The 13th-century Pointed cathedral contains Donatello's statue in bronze of John the Baptist.
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Henry Fountain, 12-4608
Picture, cathedral (graveure), 17-6170
- Sierra Leone,** account of, 9-3056
- Sierra Madre.** Mountain range in Mexico. Sometimes applied to Rocky Mountain system in New Mexico.
- Sierra Nevada.** Californian mountain range containing Mount Whitney, the highest peak in the United States, 14,897 feet. Famous for its grand scenery.
- Sierra Nevada.** Mountain range in Andalusia, Spain, rising to 11,660 feet in Mulahacen.
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Why do we see a black spot in the sky after looking at the sun? 14-4950
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Why can we not see the bottom of a river? 10-3580
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Why do dark things look smaller than light things? 6-2122
Why do houses seem crooked when we look across a fire? 5-1752
Why do things seem blurred when seen from a great height? 7-2612
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Why does heat make things seem to quiver? 5-1751
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- Signorelli, Luca di Egidio di Venture de',** Italian painter, 2-699
- Si-Kiang,** river in China, 2-422
- Silage,** fodder in silo, 7-2413
- Silesia.** Important Prussian province, lying between Czecho-Slovakia and Poland. In the southeast is a valuable coal-mining district, zinc and lead being also found; but much of the industrial district has become Polish by plebiscite. Breslau, the capital, is a manufacturing centre, and a small part of the province belonging to Czecho-Slovakia is also industrial.
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Silver (Ag). A shiny white metal. When found in its native state its surface soon tarnishes upon exposure to the air. It is usually found in wiry, flaky or mossy masses and often with lead or copper. It is a soft metal and ranks next to gold in malleability and ductility.
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Simeon Stylites, St. Monk of Sisan, Syria, who, when his fame spread among the Arabs, retired up a high pillar near Antioch, on which he lived for 30 years. He made many converts, and also influenced state matters up to his death, in about 459.
Simla. Hot-weather capital of India, in the Punjab. It stands 7,000 feet above sea-level in the Himalayan foothills.
Simmons, Edward E., American painter, 10-3453
Simms, William Gilmore, American author, 13-4628
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Simoon, desert wind, 18-6743
Simple cell, *see* Electric batteries
Simplex printer, note and pictures, 17-6058
Simplissimus, character in early German book, 17-6268
Simplicius, Christian martyr, 9-3068
Simplon Pass. Alpine pass leading from the Swiss Valais to Domo d'Ossola, Italy. The railway to Milan is carried beneath it by a tunnel 12 miles long, 6,600 feet.
Simpson, Charles, English painter, 8-2860
Simpson, Sir George, head of Hudson's Bay Co., 12-4339
Simpson, James, discovered use of chloroform as anesthetic, 8-2729-30
Sims, Admiral William S. Born, Port Hope, Canada, in 1858. Became American citizen. Commanded American naval forces in European waters after the United States entered the Great War.
Sinai, Mt. Historic summit in the Sinai peninsula of Egypt. 8,550 feet.
Sine die. Latin for "without day"; indefinitely.
Sine qua non. Latin phrase meaning "without which nothing"; hence, in English, an indispensable condition.
Sinecure. Office of profit or dignity involving no serious obligations. The term is from the Latin *sine cura*, without care.
Sinew. definition of, 5-1803
Sing Sing. New York State prison at Ossining, Westchester County, New York.
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 When we sing a note to the piano, why does it answer? 5-1750
Single tax. A theory of taxation by which only land value would be taxed, people contributing to the public revenue in proportion to the value of the land they hold, and paying no other government tax.
Sinn Fein, in Ireland, 8-2938, 2940
Siouans. One of the largest linguistic stocks of North American Indians. In former times they ranged far and wide, especially from the Saskatchewan southward to Arkansas and from the Mississippi to Wyoming. They include the Dakotas, Omahas, Iowas, Crows, Assiniboins, Osages, Winnebagos and many others.
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Sirocco. Italian name for a southeast wind, which may be warm, humid and sultry as in the winter, or hot and dry and dust-laden, usually in the spring.
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Slang. Words and phrases not recognized as standard but in common use, especially among the lower classes. Frequently slang words become so much a part of a language that they become standard. Sometimes these slang words are mere jargon, originating with a special class, such as race-track followers, tramps, etc. Sometimes they are standard words to which an entirely different meaning has been given. Slang is more or less a part of everyday conversation of all classes of society, though each class may use a different form.

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- Smithsonian Institution, The**. An institution in Washington, D. C., devoted to the "increase and diffusion of knowledge among men." It was founded in 1846 as a result of a legacy for that purpose bequeathed to the United States by James Smithson, an English chemist and mineralogist. It has been the parent of several scientific bodies which later became government departments. The Institution carries an original research work in science and publishes pamphlets and memoirs on scientific subjects.
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- Smokeless powder**. A form of gunpowder that burns or explodes without developing much smoke. It is used largely in modern warfare for rifle and gun ammunition and also in ammunition for sporting rifles.
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- Snake dance**. A tribal dance of the Hopi Indians of northeastern Arizona, in which the performers handle live rattlesnakes.
- Snake River**. American river rising in Yellowstone National Park, Wyoming, and flowing into the Columbia River. 950 miles.
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Solution. The state of being dissolved: the changing of matter from a solid or gaseous state to the liquid state by means of a liquid.
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Somaliland. East African territory comprising British, French and Italian Somaliland. French

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Somme. River of Picardy, France, flowing past St. Quentin, Péronne, Amiens and Abbeville to enter the English Channel. During the World War four important battles were fought in this area. 150 miles.

Somnambulism. The act of walking about and performing apparently ordinary acts while in a state between sleeping and waking. Often the word "sleep-walking" is used to express the same meaning.

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Sorbonne. One of the colleges of the University of Paris. It was founded about 1250 by Robert de Sorbon (or Sorbonne), Chaplain of Louis IX, and was originally a theological college. The Faculty of Theology disappeared after the French Revolution. New buildings were erected in 1889, called the New Sorbonne.

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South Carolina. One of the South Atlantic states; area, 30,989 square miles; capital, Columbia. Besides cotton, much phosphate rock is exported; third state in cotton-manufacturing. Charleston is the largest city and the chief port. Abbreviation, S. C. Nickname, "Palmetto State." State flower, the yellow jessamine. Motto, "Dum spiro, spero" (While I breathe, I hope). Named in honor of Charles II of France, or Charles I of England. First settlement is thought to have been made at Old Charleston in 1670.

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South Dakota. One of the North Central states; area, 77,615 square miles; capital, Pierre. Here are several Indian reservations. Farming, stock-raising and mining for gold, silver and lead are carried on. Abbreviation, S. Dak. Nickname, the "Swiagecat State" or "Sunshine State." State flower, the Pasque flower. Motto, "Under God the people rule." Dakota is an Indian word meaning "alliance of friends." First settlement is thought to have been made at Yankton about 1859.

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South Shetlands. Uninhabited island group in the South Atlantic, a dependency of the Falkland Islands. The seal fishery is important.

Southampton. Port of Hampshire, England, at the head of Southampton Water. 79 miles from London, it is a great port for transatlantic liners, and has large engineering industries. Docks cover 300 acres.

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- Sovereignty**. *Internal sovereignty* has to do with the ultimate control a state has over its subjects; *external sovereignty* concerns the position of a state among other states.
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- Spinning-wheel**. An old-fashioned wooden machine for spinning into threads wool, cotton or flax. It has a frame, wheel, spindle and band, and is worked either by hand or by a foot treadle.
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- Spoils system**. In politics, the practice of a victorious party to eject from public offices members of the defeated party, and to reward, with the vacated offices, its own supporters. The name was given in 1832, when Mr. Marcy remarked of New York politicians, "They see nothing wrong in the rule that to the victor belong the spoils of the enemy."
- Spokane**. Lumbering, mining, fruit-growing and manufacturing centre in state of Washington.
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- Spontaneous generation**. The supposed birth or generation of living things from non-living matter.
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 Welcome to Spring, by Pierre de Ronsard, 7-2364
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- Springfield**. Capital of Illinois. Famous for its association with Abraham Lincoln, who practiced law here, and whose monument and mausoleum are only a mile from the heart of the city. Springfield is the centre of a rich farming and coal-mining district; it also has horse-breeding interests.
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- Squadron**. A division of a cavalry regiment corresponding more or less to a company in an infantry regiment.
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- Square**. A four-sided plane figure having all its sides equal and all its angles right angles.
- Square measure**. The method of measuring the area of a plane surface having length and breadth. A unit of square measure is a unit of rectilinear measure multiplied by itself; for example, 1 foot multiplied by 1 foot equals 1 square foot. That is, a square foot is 1 foot long and 1 foot wide.
- Squash**. The fruit of a plant of the Gourd Family. The pumpkin and the Hubbard squash are the two most familiar squashes, with vegetable marrow a good third. In North America

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squashes are used as vegetable food and for pies.
- Squatter sovereignty, or popular sovereignty.** American historical expressions referring to the right of the inhabitants of a territory to regulate their internal affairs in their own way without the intervention of Congress. "Squatter" sovereignty applied to unorganized territory inhabited by squatters, and "popular" sovereignty to an organized territory.
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- Stadium**. Originally a horseshoe-shaped or semi-circular grand-stand nearly surrounding an ancient Greek sports field, and having the seats arranged in sloping tiers. Olympia and Athens had the most celebrated stadia. Nowadays many colleges have erected notable stadia where football games and other sports are held.
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- Staggerwort**, weed, 15-5330
- Stained glass**. The expression used to describe windows made of colored glass. As early as the 5th century A.D. mention is made of stained-glass windows in European churches. Figures of the saints and conventional designs were the most common subjects for this kind of art. Later private houses often had stained-glass windows of a non-religious character. Nowadays colleges, libraries and other public institutions have notable windows of this kind. There are various methods of giving color to the glass, many pieces of which go to form the window, and these pieces are held together by being set in ribbons of lead.
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- Standish, Miles (or Myles)**. Born, Lancashire, England, 1584; died, Duxbury, Mass, 1656. He was one of the colonists on the Mayflower. The Pilgrim Fathers appointed him captain, and he led many expeditions against the Indians. About this man Longfellow wrote his poem The Courtship of Miles Standish.
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State, Department of. An executive division of the United States government, presided over by the Secretary of State, who ranks as most important of the Cabinet ministers. Through this department are carried on all relations with foreign powers.

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Steam shovel. A digging-machine or excavator worked by steam power. The huge scoop or shovel is fastened to a boom hinged to a supporting mast mounted on a movable base or car. The engine on the car swings the mast into position and gives a downward thrust to the shovel, forcing it into the earth. Mechanism handled by the man in charge provides for

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Steinmetz, Charles Proteus. Electrical engineer, noted for scientific insight, practical inventions and lucid writings. Born in Breslau, Germany, 1865; died, Schenectady, New York, 1923. Lived and worked in the United States after 1889.

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Stettin. Important German Baltic port, and capital of Pomerania, on the Oder. It has large cement, sugar and shipbuilding trades.

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Stauben, Friedrich Wilhelm von, Baron (1730-94). German-American soldier, born in Magdeburg. He entered the Prussian army in 1747

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and served for nearly twenty years. In 1773 he arrived in the United States, and was soon made inspector-general. He gave invaluable service in training troops and introducing system into the army, and also was an effective commander. Several states voted him tracts of land, and he spent the last years of his life near Utica, N. Y., where there is a monument in his memory.
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- Stoicism**. The system or theory of an ancient school of philosophers in which calm fortitude is the desirable virtue to be sought in life with an indifference to pleasure or pain. Stoics sought to live according to nature. Zeno founded this school of thought about 308 B.C.
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- Sub judice**, Latin for "under consideration."
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- Submarine-chasers**, 18-6816
- Submarine mine**, An explosive device anchored below the water-line and designed to destroy or injure a ship by blowing a hole in her hull.
- Subpœna**, An order or writ demanding the presence in a court of justice of the person on whom it is served. Failure to obey a subpœna renders a person liable to a penalty.
- Subsidy**, Assistance or aid in the form of a sum of money.
- Subtraction**, The taking-away of one part from another; the taking of a part from the whole; or finding the difference between a smaller number and a greater.
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- Sudan**, Vast Anglo-Egyptian territory in northeast Africa; area, 1,014,400 square miles; capital, Khartoum. Though it contains the Nubian and much of the Libyan Desert, it has much fertile land in the Nile valley, and the cultivated area is being greatly increased by irrigation. Cotton-growing especially is making great progress, while cattle-raising and the cultivation of millet are important. Exports include the world's chief supplies of gum arabic and ivory, with sesame, senna, ground-nuts, dates, hides, gold and cattle. Omdurman, El Obeid, and Kassala are important towns; Suakin and Port Sudan are ports. The name Sudan is used also for a large French West African district, lying south of the Sahara. extent of, 9-3054, 3056
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- Sulphates**. In chemistry, salts of sulphuric acids. Gypsum is a calcium sulphate; barytes is a barium sulphate; Epsom salts is a magnesium sulphate, etc. Sulphates are widely distributed in nature.
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- Sulphite pulp**, for making paper, 7-2443
- Sulphur (S)**. An element found pure in beds of gypsum and in volcanic regions as a rule. It is soft, yellow and resinous in appearance. It burns with a blue flame and gives off the well-known sulphur odor. In combination sulphur is found as copper pyrites, iron pyrites, etc. Sulphur is used for making matches, fireworks, gunpowder, medicines, insecticide and for many other purposes.
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Swithun, or Swithin, St. Wessex monk who
 was Bishop of Winchester, and had great in-
 fluence over church and state matters of the
 time. His remains were moved into Winchester
 Cathedral in 971, and miracles are said to have
 been performed at his shrine. There are var-
 ious theories of the origin of the myth about
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Sword. One of the first weapons of defense
 made by man. An edged metal blade fixed in a
 grip or hilt, with some sort of protection for

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sword (continued)

the hand, was the first general pattern of sword. The blade was protected by a covering called a scabbard. Different forms grew out of the original type, and sabres, claymores, rapiers, scimitars, etc., were developed by different nations. In these days of firearms the sword has lost its importance as part of a soldier's equipment.

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Sydney. Largest city and seaport of Australia, capital of New South Wales. The great Pacific shipping centre of the Commonwealth, it stands on the natural harbor of Port Jackson, one of the finest in the world; it is well laid out, and has two cathedrals and a university, and a number of public parks. There are clothing, leather, pottery, glass, furniture, tobacco and engineering industries. Famous for its splendid climate, Sydney is the oldest Australian city, having been founded in 1788.

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Sydney. Centre of the coal, iron and steel industries of Cape Breton Island, Nova Scotia. It has a fine harbor and an active shipbuilding trade.

Symbol. A sign or mark representing an object, animate or inanimate, that typifies an idea or a quality. The lamb is the symbol of power; the olive-branch of peace, etc.

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Synagogue. A congregation of Jews meeting for religious instruction and worship; also the building in which such a congregation holds public worship.

Syndicate. A group of persons or corporations—financiers, capitalists or others—who form an association with the object of carrying out or promoting some enterprise financial or industrial, such as underwriting an issue of bonds. The various members may be bound together in whatever legal relation they may agree upon, as, for instance, a partnership.

Syntax. In grammar the arrangement of words in sentences in their proper relation to each other according to established usage or rule.

Syracuse. Once the most important Greek city in Sicily, Syracuse is now a decayed seaport with narrow, dirty streets. It has a cathedral, once the ancient temple of Minerva, and many interesting ancient remains.

Syria. French mandatory state in western Asia; area, 60,000 square miles. It was an ancient centre of civilization. It is now mainly an agricultural country. Beirut, Alexandretta, Tripoli and Latakia are the chief ports, and Aleppo, Damascus, Homs and Hamah the chief inland towns.

rare stamps, 16-5888

under the League of Nations, 18-6678

Picture, silk-making at Antioch, 15-5315

Syringa, plant, note and picture, 16-5720

Syrinx, a nymph changed into reeds, 9-3236

Syrin, J., German woodcarver, 13-4699

Syrup, see Sugar

Szechwan, province of China, 2-436

Taal. Dutch dialect spoken in parts of South Africa.

Tabard Inn. At Southwark, England, the starting-place of the Canterbury Tales pilgrims.

Tabb, John Banister, American author, 13-4815

see also Poetry Index for poems and notes

Tabitha, Christian disciple, story of, 1-124

Picture, 1-124

Table Mt. Flat-topped mountain rising above

Cape Town, South Africa, 3,580 feet.

Tablecloth, directions for making, 14-5118

directions for making tea cloth, 6-2046

how pattern is made in the cloth, 9-3323

stenciled, 1-337

with appliqué work, 16-5891-92

Picture, Linen table-cloth, 9-3323

Tables, directions for making

from cheese-box, 14-5006

toy, 5-1765-66

Taboga, island, note and picture, 10-3595

Taboo. Polynesian word implying things, persons, etc. that must be avoided; hence in English anything forbidden may be called taboo.

Tabriz. Trade centre of northwest Persia, exporting raisins, cotton and carpets.

Tacitus, Cornelius, Roman historian, 16-5913

account of Tiberius, 5-1860

Picture, portrait, 16-5907

Tacking, in sailing

discovered by Greeks, 11-3914

explanation, 2-455-56

Picture, diagram, 2-456

Tacna and Arica, plebiscite as to nationality,

19-7038

Tacoma. City in the state of Washington, the centre of a rich mining, lumbering and agricultural district and an important railway centre and port.

Taddeo, Bartoli, see Bartolo

Tadoussac, Canada, first trading-post in 1599, 2-679

Tadpoles, account of, 15-5453-54

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Question about. Where does the tadpole's tail go? 1-74

Taft, Lorado, American sculptor, 14-4940;

19-7124

Picture, statue of Chief Black Hawk, 15-5281

Taft, William Howard, president of U. S.

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appointed Chief Justice of the Supreme Court,

8-2672

life, outline of, 11-3954

Picture, portrait (gravure), 11-3947

Tag, game, 3-1029

Tagalos, or Tagalogs. A race who dwell in the Philippine Islands of Luzon, Mindoro, Lubang and Marinduque. They are of Malayan origin.

Tagore, Sir Rabindranath, Hindu poet, 15-5461

Tagus. River of Spain and Portugal, rising in eastern Spain and flowing into the Atlantic. It passes Aranjuez, Toledo, Talavera and Alcantara in Spain, and Abrantes, Santarem and Lisbon in Portugal. 565 miles.

Tahiti, first missionaries, 9-3304

Picture, native women, 9-3297

Tahoe, Lake. Largest lake in the Sierra Nevada Mountains. On the boundary between Nevada and California. It is about 22 miles long and 10 miles wide.

Tahr, animal. *Picture*, 4-1373

Tai. People of Southern Mongol stock who dwell in Indo-China. They are known as Shans by the Burmese, and Laos by the Siamese. They are very numerous in southern China. They may have Caucasian blood in their veins.

Tallefer, Norman minstrel, 5-1565

Picture (in group), 4-1439

Tailors

Question about. Why does a tailor wear a thimble without a top? 16-5962

Taiping Rebellion, China, 2-432-33

Taj Mahal. India, description, 15-5471-72

built as memorial, 8-2700

Pictures, 8-2701; (gravure), 8-2835; 15-5477

Takin, animal. *Picture*, 4-1374

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- Talavera, Battle of.** Fought by Wellington with 19,000 British and 30,000 Spaniards against the French in 1809. After varying fortunes Wellington made a strong counter-attack, and the French retired to Madrid. The French lost 7,000 men, but the allies lost heavily and were unable to pursue.
- Talbot, William Henry Fox, inventor, 18-6593**
- Talc, or steatite.** A greenish white mineral with a pearly lustre and so soft that it can be scratched with the finger nail. It is used as a lubricant, as a basis for cosmetic powders and as "French chalk" to remove grease from silk and cloth. Talc is common to many districts throughout North America.
- Tale of Reynard the Fox, note and excerpt, 18-6561**
- Talent.** An ancient measure of weight; then a particular weight of gold; eventually a sum of money. The value of a Syrian talent would be from \$1,700 to \$2,000 of our money; the value of a Roman great talent would be about \$480.
- Talisman, The, by Scott, note on, 11-4070**
- Talking**
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- Talking machines**
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Question about. Why does a trumpet make the phonograph louder? 14-5224
- * *Pictures, 1-260-265*
- Tallahassee.** Capital of Florida, finely situated on a hill in the neighborhood of lakes. Principal manufactures are cottonseed oil, lumber, naval stores and cigars. In the neighborhood cotton, tobacco and sugar-cane are raised.
- Talleyrand-Périgord, Charles Maurice de (1754-1838).** French diplomatist and statesman under Napoleon and in the period following.
- Tallis, Thomas, English musical composer, 19-6913-14**
Picture, portrait, with William Byrd, 19-6915
- Tallow.** The solid oil or fat obtained for the most part from cattle and sheep. When pure it is white, but as sold commercially it usually has a yellow tinge. The best quality is used to make candles; inferior qualities are used for greasing machinery, making soap, etc. From certain trees and seeds a kind of vegetable tallow is obtained.
- Talud, stories from, 9-2482; 18-6480-81**
- Talon, Jean Baptiste (1625-91).** A French official, intendant of justice, police and finance in New France from 1663 to 1668 and from 1670 to 1672. He built ships, started trade with the West Indies, sent out exploring parties and did many other things for the good of the colony. His report to the king of France, written in 1667, is a valuable historical document.
- Tamarack trees, American larches, 11-4104**
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- Tamaraos, buffaloes of Philippines, 4-1264**
- Tamarisks, shrubs, 14-5158-59**
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- Tamarugal, Desert of**
products coming from, 7-2421
- Tamerlane, Tartar leader**
invaded Persia, 3-918
- Taming of the Shrew, play by Shakespeare**
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- Tampico.** Most important oil port of Mexico, near the mouth of the Panuco river.
- Tanagers, birds**
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Paradise tanager, 12-4372
red-necked tanager, 10-3621
scarlet tanager, 10-3622
western tanager, facing 14-5133
- Tanga, Tanganyika, 9-3054**
- Tanganyika, Lake.** Second largest African lake, on the borders of Tanganyika Territory, northern Rhodesia, and the Belgian Congo. 12,700 square miles in extent, it is the longest lake in the world, measuring 400 miles; from 30 to 45 miles broad, it is over 1,000 feet deep. Burton and Speke discovered it in 1858.
- Tanganyika Territory.** Formerly German East Africa, British mandatory state; area, 365,000 square miles; capital, Dar-es-Salaam. It is still largely undeveloped, but the Central and Usambara Railways have made great areas available for coffee, coconut, caoutchouc, sugar and cotton planting, while there are many sheep and cattle and valuable mineral deposits.
surface of, 9-3054
formerly German East Africa, 9-3050
- Tangerines, variety of orange, 6-2058**
- Tangier.** Moroccan international port on the Strait of Gibraltar. It is a favorite tourist resort. It is surrounded by ancient ruins of walls, and by garden areas.
- Tangrams, 13-4751**
- Tanks.** The name given during the World War to armed and armored automobiles propelled on the caterpillar-traction system and first used in active service in 1916 by the British. They were able to clamber across trenches, and their armor protected their occupants from rifle and machine-gun fire.
- Tanks, Oil, 13-4552**
- Tannic acid, see Tannin**
- Tannin**
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- Tannin, Artificial, 5-1550**
- Tanning**
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- Tansy, weed, description, 15-5394**
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- Taoism, a religion of China, 9-3959**
- Tape-grass, *Pictures, 3-1028***
- Tapestry.** A fabric consisting of a warp upon which threads of wool, silk, gold and silver are woven by a needle to produce a pattern. Tapestry was generally used to cover walls of large rooms in the Middle Ages. Later it was also used for covering furniture. Historically the Bayeux tapestry, representing the invasion of England by William the Conqueror, is the most famous of all tapestries. Arras, Brussels, Gobelin, Aubusson and Jacquard are all types of tapestry.
- Tapeworm.** A parasitic worm, tape-like in form and varying in length from a tiny creature to one several yards long, found in the alimentary canal of higher animals including man. It absorbs nourishment from food taken in by the intestines of its host. Its body is divided into many segments easily broken off, but until its head is obtained the worm cannot be got rid of.
part in forming a pearl, 19-6885, 6888
- Tapioca.** A starchy substance prepared from cassava (root of the manioc) by drying it while moist upon hot plates until the starch-grains swell or even burst. These swollen grains, when placed in boiling water, swell up and form a jelly-like mass.
- Tapir, animal, 5-1825-28**
Pictures, 5-1827
- Tar, Jack**
Question about Who is Jack Tar? 7-2486
- Tar.** A thick, blackish, sticky material obtained by destructive distillation of organic and bituminous substances such as coal, wood, peat and shale. Coal-tar is obtained largely in the manufacture of gas from coal. Wood-tar is obtained by burning wood without flame, for instance, under a covering of turf.
use of coal-tar in dyes, 2-636
- Tara.** Village in Meath, Ireland, which was for centuries capital of the early Irish kings. On the Hill of Tara stood the royal palace, and there are remains of earthworks and monuments.
- Tarantulas, spiders, 16-6018**
- Tarapacá, source for nitrates**
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- Tarbell, Edmund C., American painter, 10-3455**

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- Tardigrada**, or water-bear
can live without food, 2-457
- Tarentum**, Italy, conquered by Romans,
4-1194
- Target**. A mark at which users of firearms,
archers, etc., shoot for practice or in competi-
tion for prizes. Usually the target is divided
into circles, the spaces between which have cer-
tain values in counting the score. Originally
targets were circular shields made of wood and
leather studded with brass, and worn by Gaelic
fighters on their left arms.
- Tariff**. Duties or taxes according to a fixed list
on goods coming into or going out of a country.
The word is applied also to the laws which
regulate such duties. The purpose of a tariff
is either to raise money for carrying on govern-
ment or to protect the industries of a country
by putting a charge on things made in foreign
countries.
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- Tarik**, Saracen chief
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- Tarleton**, Banastre (1754-1833). British soldier
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- Tarnishing**, explanation of, 10-3477
- Tarquinius the Proud**, king of Rome, 4-1361-62
- Tarragona**. Spanish Mediterranean port, with
a 12th-century cathedral and many Roman re-
mains. These include an amphitheatre, an
aqueduct and the Tower of the Scipios.
- Tarshish**, ships of, 11-3910
- Tartaric acid**. An acid compound of carbon,
hydrogen and oxygen. The commercial article
is obtained from argol, a product of grape-juice
fermentation. Purified argol is called cream of
tartar. Tartaric acid is used in dyeing, calico-
printing and in medicine.
- Tartars**
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- Tasso**, Torquato, Italian poet, 17-6154
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 Why do our tears taste of salt? 2-688
 Why do we have different tastes in eating?
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 Why do we say that sugar is sweet? 1-310
- Tate**, Nahum, hymn-writer, 12-4437
- Tatler**, early English periodical, 5-1621
- Tatti**, Jacopo, *see* Sansovino
- Tattooing**. Pricking the skin and inserting dif-
ferent pigments or colors in the pricks to form
an indelible pattern on the skin. Uncivilized
peoples often cover their bodies with fantastic
patterns. Sailors sometimes have designs tat-
toed on their arms or chests.
- Taughannock Falls**, N. Y. state, note and pic-
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- Taupo**, Lake, New Zealand, 7-2574
- Taxes**
* account of, 13-4553-56
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- Taxidermy**. The art of preparing and preserv-
ing the skins of animals and stuffing and
mounting such skins so as to resemble as
closely as possible the living animals.
- Tay Bridge**, Dundee, note and picture, 1-35
- Taylor**, Bayard, *see* Poetry Index, for poems
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- Taylor**, Jane, *see* Poetry Index, for poems and
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- Taylor**, Jeffreys, *see* Poetry Index, for poems
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- Tegucigalpa**. Capital of Honduras, Central
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Television. The seeing of a distant object by means of an electrical device which transforms light waves into waves that travel through space or over wires, then changes them into light waves again at the receiving end.

- Tell, William, Swiss hero, 19-7217-19
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Temesvar, or Temisoara. Capital of the Rumanian Banat. The centre of a great grain, tobacco and leather trade, it has two cathedrals.

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- Is our blood cold when we feel cold? 7-2485
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- Why does hot water take up more room than cold? 16-960

Tempering, or annealing. Bringing a metal to a proper degree of hardness and elasticity for use by alternate heating and cooling.

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Templars. Secret society of monastic knights to defend the Holy Sepulchre and pilgrims to Jerusalem; founded, 1118; dissolved, 1312.

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- Parthenon, Athens, 3-1079
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"Ten Thousand," Greek soldiers with Xenophon, retreat of, 3-1081

Tenant. A person who holds real property by private ownership or any kind of title; or, as more frequently used, a person who rents property from another person, the rent for and the time of holding the property being put down in writing in a document called a lease.

Tendon, definition of, 5-1803

Tendrils, part of plant, movement of, 2-744

Teneriffe. Largest of the Canary Islands, covering 780 square miles. Of volcanic origin, it rises to over 12,000 feet in its famous Peak, and is extremely beautiful and fertile; Santa Cruz, the capital, exports much fruit.

Teniers, David, the Younger, Flemish painter
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Tennant, Edward Wyndham, *see* Poetry Index
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Tennessee. Southern state on the Mississippi's left bank; area, 42,022 square miles; capital, Nashville. There are iron, coal, lumbering and varied agricultural industries. Cotton and lumber are the chief manufactures and the state is second in the production of marble. Memphis, the largest city, is a busy river port. Abbreviation, Tenn. Nickname, "Big Bend State," "Volunteer State" or "Hog and Hominy State." Flower, passion flower. Motto, Agriculture, Commerce. The name comes from an Indian word meaning "curved spoon." First settlement, Watauga, about 1769.

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Tennessee River. American river formed by the Clinch and Holston rivers, Tennessee. It flows into the Ohio River, 1,200 miles.

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- Tense.** In grammar, one of the forms or set of forms which a verb takes in order to indicate time of action.
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- Terpsichore,** muse of the dance, 9-3228
- Terra,** the earth, regarded by Greeks as mother of all, 9-3226
- Terra-cotta.** A hard, unglazed pottery, harder baked than brick but of finer quality, used as a building material or for statuettes and rougher vessels and ornaments. The color varies according to the earth used. Sometimes the surface is enameled.
- Terra Nova,** ship, 14-5096
- Terrace.** In geology, a strip of almost level land dropping down sharply on one side to a body of water. Sometimes it is nothing more than a raised beach. Often used to denote a row of adjoining houses. In landscape gardening, an artificial terrace is often built up by means of masonry and turf.
- Terrapin,** or water turtle, 14-5234-35
- Terriers,** dogs, 2-718
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- Territory.** A domain or piece of land belonging to an individual, or the extent of land and water under the jurisdiction of a sovereign state. In the United States and Canada the word is used to describe large areas within those countries which have incomplete state or provincial governments and are governed largely from the federal centre.
- Terror,** ship, 14-5090-91
- Terror, Mount,** discovered by Sir J. C. Ross, 14-5090
- Terror, Reign of,** 6-2134
- Terry, Ellen,** actress
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- Tesla, Nikola** (1857-). Serbian-American inventor and electrical engineer. Invented the system of alternating-current power-transmission and the induction motor.
- Tests, Educational**
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- Tethys,** in mythology, 9-3235
- Te-Umman,** king of Elamites, 2-656
- Teutobochus,** barbarian king, and bones of mastodon, 5-1734
- Teutoburger Wald, Battle of.** Annihilation of three Roman legions under Varus by the German hero Arminius, or Hermann, in A.D. 9. Arminius ambushed the legions on the march in difficult forest country, and hardly a Roman escaped. "Varus, give me back my legions!" exclaimed Caesar Augustus, on hearing of the disaster.
- Teutonic tribes,** 11-3959
- Tewkesbury,** England
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- Texas.** Largest state in the Union; area, 265,896 square miles; capital, Austin. Part of the state consists of arid plains, but in the fertile sections cotton, corn, rice and other cereals, sugar and tobacco are abundantly produced; stock-raising and the coal and petroleum production are important; lumbering, petroleum refining, meat-packing and cottonseed products are also important. San Antonio is the largest city. Dallas, Houston, Fort Worth and Galveston are the chief towns. Abbreviation, Tex. Nickname, "Lone Star State" or "Beef State." Flower, bluebonnet. Texas is an Indian word meaning "friends" or "allies." First settlement, thought to have been made at San Antonio, about 1692.
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- Texas fever** in cattle, transmitted by a tick, 16-6019
- Texel.** Westernmost and largest of the Dutch Frisian Islands; area, 71 square miles. Here Blake defeated a Dutch fleet under Van Tromp in 1653.
- Textile.** A woven fabric, such as cotton, silk, linen, rayon and wool, or a material suitable for weaving, such as wool, flax, hemp, cellulose, etc.
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- Thales,** Greek astronomer and philosopher, 1-201
discovered amber's property of attraction, 4-1243
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- Thalia,** muse of comedy, 9-3228
- Thallophytes,** group of plants, 10-3721
- Thames.** Longest and most important English river, draining 5,900 square miles. Rising in the Cotswolds, in Gloucestershire, it flows through a wide estuary into the North Sea, being six miles broad at its mouth. Oxford, Abingdon, Henley, Reading, Maidenhead, Windsor, Kingston, Richmond, London, Tilbury, Sheerness and Southend are the chief places it passes. Below London the Thames forms the greatest port in the world, 215 miles.
- Thames Tunnel,** built by Brunel, 19-7206
- Thanatos,** or Death, in mythology, 9-3238
- Thanet, Isle of.** In England, the Kentish district separated from the rest of the county by the Stour. Once completely an island, it is believed to have been the landing-place of the Jutes under Hengist and Horsa. It is famous for its watering-places.
- Thankfulness**
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- Thanksgiving Day**
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- Thar.** Desert in northwest India, embracing part of Sind and Rajputana.
- Thaw**
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- Theiss**, or **Tisza**, Tributary of the Danube, draining 57,000 square miles in the Hungarian plain, 700 miles.
- Themis**, goddess of equity, 9-3227-28
- Themistocles**, Athenian leader, 2-704
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- Theophrastus**, Greek philosopher
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- Theotocopi, Domenico**, *see* Greco, El
- Theresa, St.** Daughter of noble parents and born in Old Castile in 1515. She became a nun at the age of 18, and afterward founded a Carmelite Order for Nuns at Avila, besides many other religious houses. She died in 1582.
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- Tian Shan. Lofty mountain range in Turkestan, Asia, rising to 24,000 feet in Khan Tengri.**
- Tiber. Italian river which flows past Rome on its way from the Apennines to the Tyrrhenian Sea. 240 miles.**
- Tiberius, Roman emperor**
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- Tibet. Buddhist country of central Asia, nominally a dependency of China, but ruled actually by the Dalai Lama of Lhasa, the capital. Lying between the Kwen Lun and the Himalayas, it is the loftiest region in the world, ranging from 10,000 to 17,000 feet; it covers 463,200 square miles. The north and west consist of treeless tablelands, with steppes pasturing innumerable herds of yaks, horses, asses, goats and antelopes; sheep are reared in the south, and scanty crops are grown in the valleys of the Indus and Sanno. Transport is chiefly by sheep and yaks. The Tibetans are good craftsmen, but trade has been handicapped by their hostility to foreigners, Lhasa not having been visited by Europeans till 1904.**
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- Tidal bore, a tidal current which rushes roaring upstream in certain rivers with such force as to produce one or more high, abrupt wave-fronts, very dangerous to shipping. Bores are particularly high in the Amazon River of Brazil and certain rivers of India and China.**
- Tide, Neap, a tide in which the high water is lower than the average. Neap tide occurs when the moon is in the first or the third quarter and when, consequently, the sun and the moon are at right angles and their tide-raising forces work in opposition.**
- Tide, Spring, a tide in which the high water is higher than the average. Spring tide occurs when the moon is new or full, the sun and moon being then in a straight line either on the same side or opposite sides of the earth, with their tide-raising forces working together.**
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- Tin** (Sn). A silvery white metal that does not tarnish easily and is malleable. The mineral cassiterite is the principal source of tin. The principal uses of tin are in making tinplate, solder and composition metals. The tin-producing regions of the world are the Malay States, Bolivia, Dutch East Indies, Australia, Cornwall, England and China.
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- Title**. An inscription or name; an appellation of honor belonging to a person through right of rank, of position or courtesy; in law, the right of possession and of absolute ownership of property.
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- Togoland**. British West African colony under Gold Coast administration; area, 12,600 square miles. The former German colony has been shared between Britain and France, the greater part becoming French.
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- Toledo**. Large American port on Lake Erie, in Ohio. Besides having a great trade in lumber, grain and coal, it is a busy manufacturing centre.
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- Toll**. A tax paid or duty imposed for some use or privilege or other reasonable consideration. *Toll thorough* is the charge paid for the use of a bridge or highway by those who use it as a thoroughfare for personal travel or conveying goods. A gate across the bridge or road prevents passage of those who do not pay the charge. There are very few toll gates now in North America.
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- Tomahawk**. The war hatchet used by the North American Indians. Before the white man came the heads were made of flint, jasper or other hard stone, but afterward iron was used.

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- Tompot**, fish. *Picture* (in color), 16-5783
- Tonga, or Friendly Islands**. Polynesian island group in the British Pacific Islands colony. There are 32 inhabited islands, peopled by industrious and civilized natives. Copra, tropical fruits, coffee and sponges are produced. population, and nation ruling, 9-3188
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- Tonkin**. French protectorate in Indo-China; area, 40,530 square miles; capital, Hanoi. Rice, teak, sugar, coal, silk and tobacco are produced, Hai-phong being the chief port.
- Tonsils**. A pair of oval bodies, one on each side of the throat. They are sometimes called ductless glands. Inflammation of these bodies is known as tonsillitis or quinsy.
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- Tope**, fish. *Picture*, 16-5897
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- Tormentil**, flower
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- Toronto**. Capital of Ontario, Canada, with a frontage of about 10 miles on Lake Ontario, and busy manufacturing industries. A great banking and distributing centre, it is served by the three transcontinental railways and has two cathedrals and three universities.
 burned in War of 1812, 3-945
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- Toronto University**, Toronto, Canada. Chartered in 1827 as King's College. Later the college was secularized and received its present name.
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- Torpedo**, fish, description, 16-5774
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- Torpedo boat destroyers**, of U. S. navy, 18-6816
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- Torquatus**, see Manlius Imperiosus Torquatus, Titus
- Torquay**. Watering-place in South Devon, England, on Tor Bay.
- Torrans, Lake**, Australia, discovered by Eyre, 3-864
- Torres**, early explorer, Australia, 7-2463
- Torres Strait**. Wide channel between Australia and New Guinea, with a famous pearl fishery.
- Torrey, John**, American botanist, 19-7054
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- Tortuga**, island of West Indies
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- Tory**. Originally an Irish robber. Then the term was applied to the Cavalier or Court party after the Civil War in England. Gradually the name Tory gave way to that of Conservative.
- Tosi**, inventor of wireless compass, 17-6248
- Tottel's Miscellany**, first collection of English poems, 3-1118
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- Toulon**. Fortified French seaport on the Mediterranean, with a fine harbor and 240 acres of docks. There is a considerable shipbuilding industry.
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- Toulouse**. French cathedral city on the Garonne, with manufactures of silk and woolen goods, tobacco and agricultural machinery.
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- Touraine**. Old French province in the valley of the Loire. Tours, the capital, Amboise and Chinon are the most famous towns. It corresponds to-day to the present department of Indre-et-Loire.
- Tourmaline**, gem, account of, 19-7231
Picture (in color), facing 19-7225
- Tournament**. A contest of skill in which a number of persons take part.
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- Tours**. Old capital of Touraine, France, on the Loire. An important railway centre it has iron,

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Township. A division of a county with its own officers and political and administrative powers for carrying on minor local affairs, such as road-repairing, maintaining schools, providing for the poor, etc. In the newer parts of the United States and Canada a township contains 36 square miles.

Toxins. Specific poisonous substances resulting from secretion products of vegetable and animal organisms; or, as we may say, poisons given off by certain bacteria or germs when they have entered into chemical combination with animal cells. Antitoxins are substances which neutralize or render harmless such toxins.

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Trade mark. A distinguishing design or mark adopted by a manufacturer and stamped upon his products to indicate the maker. In most countries trade marks may be registered and protected by law. Trade marks came into use to protect a manufacturer against those who would imitate his goods and sell them pretending them to be the product of the original manufacturer.

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Traitor's Gate. River gate of the Tower of London, through which in old days prisoners were admitted to custody.

Trajan, Roman emperor

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Transylvania. Mountainous plateau in eastern Europe, formerly part of Hungary, but since 1918 a Rumanian province. Over a third of its area is covered by forests, but the soil is generally fertile, and about half the country consists of either cultivated or pastoral lands. Salt, gold, silver, copper, quicksilver, iron and lead are found, and mineral springs abound. Sibiu (Hermannstadt), Cluj (Kolozsvar) and Brassó (Kronstadt) are the chief towns.

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Treadmill. An old-fashioned appliance for producing power by means of a person or animal stepping on movable steps connected with a revolving cylinder or wheel affixed to a shaft which transmits energy to the mill. The wheel on a squirrel cage is on the same principle.
Treason. A breach of faith; a violation by a subject of his allegiance to his country.
Treasure Island, by R. L. Stevenson
 * summary, **13-4645-53**
Treasury Department. A department of government which has control over the collection, management and expenditure of the public revenue.
Treaties, see names of cities where made, or distinguishing word; as, Paris, Treaty of
Treble. In music, high in pitch; the highest part in harmonized music, in general containing the melody and sung by a soprano voice. It is one of the two clefs used in music for keyed instruments, the other is the bass.
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Trent. Old Italian town on the Adige, with a Romanesque cathedral and many handsome buildings. It manufactures silk, pottery and sugar, and has a brisk transit trade.
Trent, ship, and Mason and Slidell, 7-2434
Trent, Council of, 1545 to 1563. Controlled by Italians and Spaniards, it fixed the Roman Catholic creeds and condemned the Reformation. Its decrees are called Tridentine decrees, from the Latin name of Trent.
Trent Canal, Canada
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Trentino, Austrian and Italian control, 12-4412; 18-6458
Trenton. Capital of New Jersey, at the tidal head of the Delaware River. Pottery and wire are leading products and there are other important industries.
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Trenton, Battle of, December 26, 1776. Washington with about 2,500 men crossed the Delaware and defeated the Hessians (about 1,500), during the Revolutionary War.
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Treves, or Trier. Ancient German city in Rhenish Prussia, on the Moselle. Here are remarkable Roman remains, including an amphitheatre to seat 30,000 spectators. The 11th-century cathedral is one of the most interesting in Europe.
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Trevithick, Richard, English inventor
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Triangle. A geometrical figure made up of three lines which meet two by two in three points called vertices; any three-cornered figure or arrangement.
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Trieste. Most important Adriatic port of Italy, with a fine harbor and extensive shipbuilding, manufacturing and engineering industries. It has an ancient Byzantine cathedral and an open-air museum of Roman antiquities.

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Trinity River. American river, rising in northern Texas; flows into Galveston Bay; 530 miles.

Triple Alliance. A defensive alliance formed in 1882 between Germany, Austria-Hungary and Italy for a term of five years. It was renewed at five-year intervals until 1902, when it was extended for twelve years more. In 1914 Italy refused to join Germany and Austria, and in 1915 she withdrew from the Alliance. It was suggested by Bismarck as a check upon Russia and France.

Triple Entente. A diplomatic group made up of Russia, France and Great Britain, held together loosely by a number of agreements or understandings but not bound by a hard-and-fast treaty. This grouping followed the formation of the Triple Alliance.

Tripoli, pirates defeated by U. S. navy, 17-6028

Tripolitania. Part of the Italian North African colony of Libya; area, 350,000 square miles; capital, Tripoli. The coastal regions are fertile and produce dates, olives, figs, cereals and esparto grass, but except for oases the interior is arid and barren.

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Triumvirate. In Roman history the government of the country by three equally powerful men. There were two periods of three-man government in Rome: the first that of Pompey, Crassus and Caesar; the second, Octavius, Antonius and Lepidus.

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Trolling. A kind of fishing in which the bait is kept moving. The fisherman may be in a moving boat or he may walk along the shore keeping his line moving in the stream. Live bait, such as frogs or minnows, may be used, but many people prefer the revolving spoon with feathers and hooks attached.

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Trondhjem. Ancient Norwegian cathedral city, exporting copper, oil and timber.
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Tropic, in geography, either one of the two parallels of latitude that bound the torrid zone. The Tropic of Cancer, about 23½ degrees north of the Equator, is the circle over which the sun is vertical when it has reached the most northern position in its yearly path, our summer solstice. The Tropic of Capricorn, about 23½ degrees south of the Equator, is the circle over which the sun is vertical upon reaching its most southern position, our winter solstice.

Tropics, central zone of earth
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Trossachs. Beautiful wooded district lying between Loch Achray and Loch Katrine in Perthshire, and dominated by Ben A'an and Ben Venue.

Trotter, Bernard Freeman, Canadian poet, 14-5109
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Trotsky, Lev Davidovich. Born, 1879. Soviet leader sent to Siberia, 1898; escaped, 1902. Had a career as an agitator in many countries, and returned to Russia after the February revolution, 1917. He organized the Red Army, and with Lenin became head of the Soviet Government. After Lenin's death his power began to wane.

Troubadours. Minstrels or singing poets of southern France in the Middle Ages. Those of northern France were the trouvères.
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Trouville. Fashionable seaside resort in Normandy, France. Close by is Deauville.

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Troy weight. In the 14th century the pound (12 ounces) of the city of Troyes, France, was adopted in England. Later the troy measure ment, as the name Troyes came to be spelled and called, was confined to the weighing of gold and silver and other valuable commodities.

Troyes. Ancient city of Champagne, France, on the Seine. It has a 13th-century cathedral and manufactures hosiery.

Troyon, Constant, French painter, 7-2370
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- Trustee**. A person who holds and manages property or funds for the benefit of another and who, if legally appointed, is held accountable by law for the money or property in his care.
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- Tsingtau**, Chinese port, capital of Kiaochow territory, and formerly a German fortress.
- Tsushima, Battle of**. Great naval victory of the Japanese under Togo over a superior Russian fleet, in the Russo-Japanese War, in 1905. The efficiency and superior tactics of the Japanese enabled them to annihilate the Russians.
- Tu quoque**. Latin for 'thou too'; term used for a personal retort, as when a man is called a liar, and promptly replies: "You're another."
- Tuatera**, lizard, 14-5230
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- Turgenev, Ivan**, Russian novelist, 19-6909-10
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- Turin**. One of the chief industrial cities of northern Italy, with extensive motor-car, textile, paper, pottery and hardware manufactures. Formerly capital of Piedmont; it is one of the finest modern cities of Italy; it has a cathedral, a university and several beautiful churches.
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- Turkestan**. Great stretch of Central Asia lying north of the Hindu Kush and the Kwen Lun. Western, or Russian, Turkestan is an immense region of over 500,000 square miles, with vast steppes and deserts interspersed with fertile oases and irrigated lands. Agriculture and cattle-raising are the main occupations of the nomadic Turkomans; but cotton, silk, woolen and linen goods, and carpets are manufactured in the towns, including Tashkent, Bokhara, Khiva and Khokand. Samarkand was the capital of the Tartar conqueror Tamerlane in the 14th century. Eastern Turkestan, or Sinkiang, a dependency of China, is almost unknown except for the trade centres of Ili, Yarkand and Kashgar.
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- Turkish delight**, candy, recipe, 11-3856
- Turkomans**. A Turki race of nomadic habits who inhabit the uplands and steppes of western Turkestan. They are remarkable for their keen, penetrating glance, and before their conquest by Russia were ceaseless raiders.
- Turks**. The western section of the Northern Mongolic people. They include the Yakuts, Kirghiz, Uzbegs, Turkomans, Anatolians, Tartars and Osmanli. Their contact with the Caucasian type has modified the typical Mongol features in these races. They are nearly all Moslems.
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 high-mountain turtlehead, description, 19-7088
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- Tuscany**. Former Italian grand-duchy, containing Florence, Pisa, Leghorn, Siena, Pistoia and Lucca. In the fourteenth century Dante, Giotto, Petrarch and Boccaccio made Tuscany foremost in the revival of arts and letters. The Tuscan dialect became the literary language of Italy. Because of dissensions in Florence the Medici obtained supreme power, and were in alliance with Spain. For nearly 200 years Tuscany was under Spanish influence. After several changes, the people voted for union with Italy.
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- Twachtman, John H.**, American painter, 10-3456
 Picture. Snow (gravure), 10-3459
- Twain, Mark**, *see* Clemens, S. L.
- Tweed, William Marcy** (1823-78). A Democratic politician and a notorious Tammany boss in New York. At the head of a group of politicians called the Tweed Ring, he robbed the city of millions of dollars. He was caught, tried, and sentenced to jail; he escaped and fled to Spain, but was returned to New York, where he died in jail.
- Tweed**. River forming part of the boundary between England and Scotland. Rising in Clyde Law, it flows into the North Sea near Berwick, and has a famous woolen industry.
- Twelfth Night**, by Shakespeare
 story of, 8-2692
 Picture, 3-987
- Twelve Tables**. The oldest code of Roman law, engraved on copper or wooden plates and set up in the Forum in 451 and 459 B.C. The Tables form the basis of the system of Roman law.
- Twin Falls**, Idaho. 180 feet high.
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- Typhoon**, *see* Hurricane
- Tyr**, Norse god of war and Fenris the wolf, 12-4201
- Tyrant birds**, 9-3286
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- Tyrol**. Alpine region divided between Italy and Austria; the Austrian Tyrol lies in the valley of the Inn, north of the Brenner Pass; the Italian Tyrol is in the basin of the Adige and the Brenta, and south of the Brenner. Celebrated for its beauty, the Tyrol contains the Dolomites and Ortler Alps, with Ortler Spitz, 12,875 feet. Innsbruck in Austria and Trent, Bolzano and Merano in Italy are its chief towns.
 union with Austria, 17-6192
 and Andreas Hofer, 13-4588
 Picture, earth pillars, 6-2074
- Tyrrhenian Sea**. Part of the Mediterranean lying between Italy, Sicily, Sardinia and Corsica.



U-boats, *see* Submarine boats

Udall, Nicholas

author of Ralph Roister Doister, 2-721

Uganda. British protectorate in equatorial Africa; area, 110,000 square miles; capital, Entebbe. Occupied in 1890, it has rapidly increased in prosperity, there being excellent internal communication by steamers on Lakes Victoria, Albert and Kioga. The natives are engaged in cattle-raising and growing cotton, millet and sweet potatoes; British planters grow coffee and rubber. The chief trading centre is Kampala.
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Uganda Railway, Africa

 lions hindered building, 2-194

Uhland, Ludwig, German poet, 17-6271

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Ukraine, or The Ukraine. South Russian soviet republic, dependent on the Moscow government. It is famous for the rich black soil of its wheat-growing districts, and contains the cities of Kharkov, Kiev and Odessa.

Ulm. Old German city on the Danube, with a famous cathedral. After that of Cologne, this is the largest in Germany, and has a spire 530 feet high, the tallest in the world.

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Picture, cathedral (gravure), 17-6167

Ulpian, Roman lawyer

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Ulster. Irish northern province, comprising six counties in Northern Ireland adhering to England and three in the Irish Free State; area, 8,613 square miles.

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Ultima thule. Latin for "the farthest bound-
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Ultimo. Latin for "last"; usually written: ult.

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Unicorn sheep, **4-1376-77**

Union, Act of, 1800. In British history, the act
 uniting Ireland to Great Britain. It came into
 operation in 1801.

Union, The, 1707. In British history, the union
 of England and Wales with Scotland by treaty
 as the United Kingdom of Great Britain; ratified
 on May 1.

Union Islands

population, and nation ruling, **9-3188**

Union Jack, flag

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United Kingdom of Great Britain and Ireland
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United Provinces. Indian provinces of Agra and
 Oudh; area, 107,000 square miles; capital, Alla-
 habad. Vast crops are grown in the rich plain
 of the Ganges, and here are many of the great-
 est Indian cities.

United States. Most important republic in the
 world, covering over 3,000,000 square miles in
 North America. With Alaska it is almost as
 big as Europe. Between the Appalachians in the
 east and the Rocky Mountains in the west is the
 huge plain of the Mississippi, the richest
 agricultural district in the world, occupying
 more than half the country; and here enormous
 crops of grain are grown and vast numbers of
 cattle pastured. In the southeast, from Texas
 to Virginia, is the great cotton belt, producing
 three-fifths of the world's supply of cotton, be-
 sides tobacco, sweet potatoes, rice and maize.
 California and other states have an immense
 production of fruit. Of the minerals the most
 important are coal and iron, which are found in
 many states. Gold, silver, copper, lead and
 zinc are mined in many parts of the west, while
 the petroleum production of the South Central
 and Western States is enormous. Manufactur-
 ing, however, is by far the most valuable in-
 dustry. The iron, steel, leather, motor-car,
 canning and textile industries are all very im-
 portant. Commerce is served by over 260,000
 miles of railways. Politically the United
 States consists of a union of 48 states, with the
 territories of Alaska and Hawaii. Other de-
 pendencies or possessions are the Canal Zone,
 Philippine Islands, Porto Rico, Guam, Virgin Is-
 lands, etc. Washington, the capital, stands in the
 Federal District of Columbia. The commercial
 metropolis and by far the largest city is New
 York; next come Chicago, Philadelphia and De-

United States (continued)

troit. In the next group St. Louis, Cleveland,
 Boston, Baltimore, Pittsburgh, Los Angeles,
 Buffalo, San Francisco, Washington and Mil-
 waukee all have over half a million inhabitants,
 and 19 other cities have between 500,000 and
 200,000. The chief ports are Boston, New
 York, Baltimore, Norfolk, Newport News,
 Charleston, Savannah, New Orleans, Galveston,
 San Francisco and Seattle. The population in
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 105,000,000 and it is still increasing.

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- Upjohn, Richard Michell**, American architect, son of Richard Upjohn, 18-6681
 - Picture*. State Capitol, Hartford, Conn., 18-6683
- Upper Canada** (now Ontario)
 - history, 1791-1840, 3-944-46
 - joined to Lower Canada in 1840, 4-1484
 - See also* Ontario
- Upsala**. Historic Swedish city, being the seat of an ancient university and the only archbishopric. Here are Gustavus Vasa's castle and burial mounds of ancient Swedish kings.
- Upsall Castle**, England, legend about, 17-6324
- Ur**. A very ancient city of the Chaldeans, sacred to the moon god.
 - oldest temple on earth, 14-5208
- Ur Svensta Hjertans**, by Strandberg, 17-6253

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- Ural Mts.** Mountain range which runs north and south for 1,600 miles between European Russia and Siberia. Platinum, gold, silver, iron, coal, salt and precious stones are found in it, its output of platinum being very important. Tollpoziz, 5,500 feet, is its highest summit.
- Ural River.** Russian river rising in the Ural Mountains and flowing into the Caspian. Orenburg is the only city it passes, it being generally too shallow for navigation, 1,400 miles.
- Urania,** muse of astronomy, 9-3228
- Uranus,** planet
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- Urban II, Pope,** and first Crusade, 7-2584
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- Urban the Good,** and Valerian, 6-1998
- Urbino.** Picturesque old city of central Italy, the birthplace of Raphael. It has a cathedral, a university and a magnificent ducal palace.
- Urial,** wild sheep, 4-1375
- Ursa Major,** *see* Great Bear
- Ursula, St.,** story of, 6-1992-94
Picture, Death of St. Ursula, 6-1993
- Uruguay.** Smallest South American republic; area, 72,000 square miles; capital, Montevideo. Its characteristics are very similar to those of Argentina, the interior being mainly a treeless, grassy prairie, which provides pasture for vast numbers of cattle. Hides, skins and meat are large exports. Uruguay was a bone of contention between Argentina and Brazil for 40 years after the collapse of Spanish rule, and achieved complete independence only in 1853.
history and description, 19-6982
Pictures, 19-6981
- Useful vegetables,** * 7-2613-24
- Uskub,** or **Skoplie.** Ancient Jugo-Slav city on the Vardar.
- Utah.** Western state; area, 84,990 square miles; capital and largest city, Salt Lake City. Sheep-raising, farming and mining are the leading occupations; smelting of copper and lead are the leading industries. Nickname, "Beehive State" or "Mormon State." Flower, Sego lily. Motto, "Industry." The state was named after the Utes, an Indian tribe. First settlement, Salt Lake City, 1847.
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- Utopia,** by More, account of, 1-306
- Utrecht.** Ancient Dutch city on the Old Rhine, with two cathedrals, one of the 8th century, and a university. Textiles and tobacco are manufactured.
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- Utrecht, Peace of, 1713**
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- Vaal.** Tributary of the Orange River forming the boundary between the Transvaal and Orange Free State. 500 miles.
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- Vacuum,** Guericke's discovery of power, with picture, 4-1244-45
- Vacuum tubes**
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- Vade mecum.** Latin for "go with me"; a small book of reference carried on the person for instant use.
- Valais.** Mountainous Swiss canton bordering France and Italy. It is traversed by the Rhone.
- Valdivia.** Port of southern Chile, exporting wheat, hides, wool and whale-oil.
- Valence.** Old French city on the Rhone, with an 11th-century cathedral and a busy river trade.
- Valencia.** Spanish cathedral and university city and Mediterranean port, the largest after Barcelona. It is a thriving manufacturing centre and does a great export trade, largely in fruit.
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- Valenciennes.** Manufacturing town of northern France, on the Scheldt. Once famous for its lace, it has cambric, iron and engineering industries.
- Valentia,** Ireland, terminal of first Atlantic cable, 12-4294
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- Valerian**
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- Valetta,** capital of Malta, 9-3182
- Valhalla,** Norse heaven, 11-3959
- Valladolid.** Historic cathedral and university city of central Spain, having once been capital of Castile and Leon. It manufactures textiles, but is famous chiefly for its beautiful old buildings. Christopher Columbus died here, and Cervantes wrote part of Don Quixote in Valladolid.
See also 14-5050
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- Valley Forge**
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- Valloton, Félix,** French painter, 8-2858
- Valparaiso.** Great port of central Chile, 116 miles by railway from the capital, Santiago. Founded in 1536, it has many busy industries, including sugar-refining and iron-founding.
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- Value, supply and demand,** * 16-5933-36
- Valves**
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- Vampires,** bats, 1-316
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- Van, Lake.** Salt lake in Turkish Armenia, 55 miles long, 40 miles broad, and 5,200 feet above sea-level.
- Vanadium (V).** A metal belonging to the antimony group and closely connected with the elements of the nitrogen group. Metallic vanadium is a light gray powder with a silvery lustre under the microscope. It is very little acted upon by air or moisture at ordinary temperature. The most abundant source is vanadinite. Vanadium bronze used to replace gold bronze is derived from an acid of vanadium.
- Vanbrugh, John,** English architect, 18-6491
- Van Buren, Martin,** president of U. S.
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Picture, portrait (gravure), 11-3947
- Vancouver, George** (1758-98). Captain in the British navy. Explored Vancouver Island, and Columbia River, between 1792 and 1794.
in Hawaii, 10-3586
- Vancouver.** Chief British Columbian port, the Pacific terminus of the C.P.R. and C.N.R. and other railways. Standing on a magnificent harbor on the mainland of British Columbia, it has

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large shipbuilding and lumber industries, and is becoming one of the most important Canadian grain ports.

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Vancouver Island. Beautiful island of British Columbia, Canada, covering about 20,000 square miles. The first part of the province to be settled, it has fruit-growing, fishing and coal-mining industries, Victoria being the chief town and port.

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Vanda, Polish princess, 13-4679

Vandalism. Wanton and deliberate destruction, especially of ancient buildings and irreplaceable works of art. The term refers to the harm worked by the Vandals, the Teutonic people who in the 5th century overran Western and Southern Europe, and attacked Rome.

Van der Goes, Hugo, *see* Goes, Hugo van der
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Van Diemen, Anthony. A governor of the Dutch East Indies in the 17th century. Tasmania was named Van Diemen's Land in his honor.

Van Dyck, Sir Anthony, Flemish painter

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Van Dyke, Henry, *see* Poetry Index for poems and notes

Van Eyck, Hubert and Jan, *see* Eyck

Van Gogh, Vincent, *see* Gogh

Van Horne, Sir William Cornelius (1843-1915). Born in Illinois. Became Canadian citizen. Great railway man. President of the Canadian Pacific Railway.

Vanilla, account of, 8-2994-95

Picture, gathering pods, 8-2995

Van Tollens, Hendrik, *see* Poetry Index for poem and note

Van Tromp, Martin. Dutch admiral, chief opponent of Blake; born, Briel, 1597; killed near Texel, 1653.

Vapor in sky, protection against sun, 13-4595

Vardar. River of Jugo-Slavia and Greece, rising in the Shar Dagh and flowing past Uskub and Salonica into the Aegean Sea. 200 miles.

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use in manuscript, 2-582

Velocity, scientific use of word, 14-4903

Velvet grass, note and picture, 10-3657

Vener, Lake. Largest Scandinavian lake, in southwest Sweden. 2,149 square miles in extent, it forms part of the canal and lake waterway connecting Gothenburg and Stockholm.

Veneti, tribe from Gaul, ships of, 11-3914

Venetia. Old Italian province between the Adriatic and the Alps, containing Venice, Padua and Verona. It was ceded to Italy by Austria in 1866.

Venezuela. Northern republic of South America; area, about 393,874 square miles; capital, Caracas. Its chief physical feature is the Orinoco, which, with its tributaries, provides about 12,000 miles of waterways, and roughly divides the agricultural and pastoral regions from the forests of the south. The country is now being rapidly developed, petroleum, coffee, cocoa, gold, hides, cattle and sugar all being important exports. La Guayra, Valencia, Maracaibo, Merida and Barquisimeto are growing towns. Venezuela proclaimed its independence in 1811, and was freed by Bolivar after 11 years of war with Spain.

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- Vera Cruz**, Port of Mexico, 265 miles by railway from Mexico City. It was founded by Cortez in 1519 on a slightly different site. It exports coffee, tobacco, sugar, rubber and mineral ore.
- American force landed at, in 1914, 19-7140
- Sir John Hawkins in, 14-4960
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- Verb**. A part of speech that asserts or declares and which with a subject makes up a sentence.
- Verbena**. *Picture*, flowers (gravure), 19-7174
- Verbum sapienti satis est**. Latin for "a word to the wise is sufficient."
- Vercheres, Madeline de**, heroism of, 11-4089-91
- Vercingetorix**, Gallic chief, 4-1360
- Verde, Cape**. Westernmost point of Africa in Senegal.
- Verdi, Giuseppe**, Italian musical composer, 19-6924, 7150
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- Verdigris**
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- Verdun**. Ancient French fortress on the Meuse, famous for its defense against the Germans in 1916, when the cathedral and town were badly damaged.
- Vereshchagin, Vasili**, Russian painter, 8-2851-52
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- Vermont**. New England state; area, 9,564 square miles; capital, Montpelier. Largest city, Burlington. Farming and dairying are carried on, and the state leads in granite and marble quarrying and maple-sugar industries. The leading industries are woolen goods and preparing stone. Abbreviation, Vt. Nickname, "Green Mountain State." Flower, red clover. Motto, "Freedom and Unity." The name comes from two French words: *verd*, green, and *mont*, mountain. First settlement, Fort Dummer, 1724.
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- Vernet, Joseph**, French painter, 5-1882
- Picture*, Mediterranean scene, 5-1875
- Verocchio, Andrea del**, *see* Verrocchio
- Verona**. One of the most beautiful Italian cities, containing a famous Roman amphitheatre, a 12th-century cathedral, the ancient castle of Theodoric, many fine palaces, and a splendid art collection of the Veronese, Paduan and Venetian schools. It lies at the foot of the Alps, and has furniture and textile manufactures.
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- Madonna of the Cuccina Family (gravure), 3-1112
- Magdalen (gravure), 3-1112
- Marriage at Cana, 4-1454; (gravure), 3-1110
- Veronica, St.** A holy woman who is said to have used her veil to wipe the sweat from the face of Jesus on His way to Calvary. The Saviour left the impress of His face upon it when He handed it back.
- Verrazano, Giovanni da**
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- Vetchling**, flower
- Pictures* (in color)
- blue marsh vetchling, 16-5881
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- Veto**. From the Latin *veto*, I forbid. The power or right in one branch of a constitutional government to negative the wishes of another branch; for example, the right of a president or

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king to reject a bill passed by the legislature or parliament of the country. In the United States, the two Houses can reconsider a bill returned by the president, and by a two-thirds majority pass such bill over the president's veto. In Great Britain the veto has not been used since the days of William III.

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"Vicar of Christ," title of the Pope, 8-2843

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Vice versa. Latin for "the other way round."
Vicenza. Ancient walled city of Venetia, Italy, with a fine Gothic cathedral. It manufactures silk, linen, paper and velvet.

Picture. Basilica Palladiana (grave), 17-6307

Vichy. Health resort in central France, famous for medicinal springs.

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Victoria. Capital of British Columbia, on Vancouver Island. A rapidly growing port, it has considerable lumber, canning and shipping trades.

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Vienna. Fourth largest European city, capital of Austria. On both banks of the Danube, it is a great commercial, banking and manufacturing centre, though its trade has declined since the break-up of the Austrian Empire; it is famous for the arts and sciences. Splendid buildings include: the old cathedral of St. Stephen, shaped like a Latin cross, with a steeple 450 feet high; the Hofburg, the former imperial palace; and the Gothic Rathaus.

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Vilna. Cathedral city in northeast Poland, trading

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Vinegar. An impure and weak form of acetic acid obtained by acetous fermentation of alcoholic products, usually wine, cider or malt.

Vinegar is used for preserving and cooking purposes, as well as for a condiment with pickles or mayonnaise.

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Virchow, Rudolf. German anatomist, the

founder of cellular pathology; born, Pomerania,

1821; died, Berlin, 1902.

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Virgin Islands. More than 100 West Indian Islands in the Leeward group; area, 465 square miles. Ownership of the islands is divided between the United States and Great Britain. Culebra, Culebrita, Vieques, St. Croix, St. Thomas and St. John are American, the last-mentioned three having been bought from Denmark in 1917. Tortola, Virgin, Gorda, Jost van Dyke, Peter's Island and Salt Island are the most important of the British Islands. The Virgin Islands were discovered by Columbus on his second voyage in 1493. Stock-raising, copper-mining, and sugar-and cotton-growing are carried on.

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Virginia. Historic state, the first permanent English colony having been founded at Jamestown in 1607; area, 42,627 square miles; capital and largest city, Richmond. Essentially agricultural, it produces much grain, fruit and vegetables, but easily its most important product is tobacco; manufactures cotton, tobacco and lumber. Produces coal and other minerals. Norfolk and Newport News are busy ports. Abbreviation, Va. Nickname, "Old Dominion." Flower, American dogwood. Motto, "Sic semper tyrannis" (Thus always to tyrants). The name was given by Sir Walter Raleigh in honor of Queen Elizabeth, the Virgin Queen.

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Vistula. River of Eastern Europe, rising in the Beskid Mountains, Czecho-Slovakia, and flowing through Poland into the Baltic. It drains 74,000 square miles, and passes Cracow, Warsaw, Plock, Thorn, Graudenz and Danzig, its chief tributaries being the Bug and San. 650 miles.

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Vitus, St. Sicilian boy who was converted to Christianity and martyred about 303. For many years it was believed that dancing before his image on his festival would bring good health for a year, and this is the origin of the name St. Vitus' Dance as applied to a nervous disease.

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Vive la République. French for "Long live the Republic!"

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Vladimir, Grand Prince of Russia, 10th century,

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Vladivostok. Siberian port on the Sea of Japan, with a splendid harbor. It is closed for a few months in the winter.

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Volente Deo, Latin for "God willing," usually

written, D.V.

Volga. Longest river of Russia and Europe, rising in the Valdai Hills and flowing into the Caspian. Draining 563,000 square miles, it is navigable almost throughout its course, while it connects by canals with the Neva and Baltic. The Oka and Kama are its chief tributaries, and it passes Tver, Jaroslavl, Kostroma, Nijni Novgorod, Kazan, Simbirsk, Samara, Saratov, Tsaritsin and Astrakhan. Sturgeon and salmon abound in its waters. 2,400 miles.

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Waccamaw River, American river, rising in southern North Carolina; empties into the Great Pee Dee River. 550 miles.

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Walden pond, *see* Thoreau, H. D.

Waldstein, or Waidenstein, Albrecht Eusebius von, *see* Wallenstein

Wales, Western principality of Great Britain; area, 7,470 square miles. Comprising 12 counties, it is generally mountainous, Snowdon (3,571 feet) being the highest mountain in England and Wales. Most of the country is pastoral and agricultural, but in South Wales is the most important anthracite coal-field in Great Britain, and here also are large copper, tinplate, zinc and oil-refining industries. Cardiff, Rhondda and Swansea are the chief industrial centres.
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Waller, Edmund, *see* Poetry Index for poem and note

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Walloons, The people of southeast Belgium of Alpine stock, who are descended from the Belgæ of Cæsar's time. Many came as Protestant refugees to England, and helped to establish their silk and cloth industries. They have worshiped in Canterbury Cathedral since 1600.

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Wampum, American Indian term for strings of shells used for ornament, tribal records, and so on. These were used as a medium of exchange with the early white settlers.

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Warrant. In law, a document granting an authorized official the power to seize or hold a person or property or to carry out a judgment. The word comes from the German "gewahren," to grant.

Warren, Joseph, American patriot

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Wart. A natural excrescence, or tumor, on the skin, usually hard and irregular to the touch and circular in shape. Generally warts are found on the hands of boys and girls between ten and fifteen years of age, but they disappear in the majority of cases after growing has stopped. A doctor can cauterize warts to make them disappear.

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Wash, The. Shallow bay of the North Sea into which the English rivers Witham, Welland, Nen and Great Ouse empty. It is the remnant of a much larger bay which once covered a great part of the Fen country of England and was gradually silted up by the rivers.

Washington, Booker, American Negro educationist; born, Hale's Ford, Virginia, 1858; died, Tuskegee, Alabama, 1915.

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Washington. Mountainous Pacific state; area, 69,127 square miles; rainiest part of the United States, it is generally thickly wooded, and has

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bering, coal-mining, fishing, stock-raising and agriculture are the chief occupations. Lumber and food products are the leading industries. The capital is Olympia, the largest town is Seattle. Spokane is also important. Nickname, "Evergreen State" or "Chinook State." Flower, rhododendron. Motto, "Al-ki" (by and by). First settlement, Tumwater, 1845.

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| Gavarnie, France..... | 1,385 |
| Takkakaw, British Columbia..... | 1,200 |
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| Multnomah, Oregon..... | 850 |
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| Middle Yosemite, California..... | 626 |
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- Wax**. Ordinarily a sticky substance secreted by bees and used to build honeycombs. It is thick dull yellow with a smell of honey. When purified it is white and plastic. It is lighter in weight than water. It is used in medicine, as modeling material, and for candies, etc. There are many other kinds of wax.
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Revolutionary War; captured Stony Point; member of Congress from Georgia, 1791-92; appointed commander-in-chief U. S. Army (1792), and defeated western Indians, 1794.

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Wayside Inn, South Sudbury, Mass.

Picture, 12-4154

"We have met the enemy and they are ours," when said, 5-1704

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Weald, The. Woodland district of England lying between the North and South Downs in Kent, Surrey and Sussex. From the time of the Romans to the beginning of the 19th century it was an important centre of the iron industry, vast numbers of trees being felled.

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Weevil. A snout beetle of the suborder *Rhyn-cophora*. The snout is often longer than the rest of the body. Varieties of weevils are among the most destructive parasites known to the agriculturist, and the worst of the tribe is the Mexican cotton-boll weevil.

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Welsbach, Auer von

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Welsh. A Celtic people with some Iberian blood

who were formerly known as Cymri. The

mountains of Wales formed a refuge and a

rallying-ground for the Gaels and Brythons

who fled from the Teutonic invaders of England.

They have the typical Celtic temperament; they

are mercurial, vehement, voluble and eloquent,

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- West Virginia**, Mountainous eastern state; area, 24,170 square miles; capital, Charleston. Largest city, Wheeling. Coal, iron and petroleum are the chief minerals. Lumbering, the manufacture of iron and steel and glass are also important. Abbreviation, W. Va. Nickname, "Panhandle State" or "Mountain State." Flower, rhododendron. Motto, "Montani semper liberi" (Mountaineers always freemen). Separated from Virginia in 1863.
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 Why cannot we see the spokes of a wheel when it is going very fast? 15-5518
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- White elephant**. A term applied to a distasteful or useless gift, or to one involving more trouble and expense than it is worth. In old days the kings of Siam used to present a white elephant to a courtier with the object of ruining him.
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- White Sea**. Deep gulf in the coast of Arctic Russia, containing the port of Archangel. Its fisheries are important, but it is icebound for the greater part of the year.
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- Whitefish**. One of the most important fishes of the Salmon Family. About twenty species are found in North America, Europe and Asia. The common whitefish found in the Great Lakes of North America is of great commercial importance.
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- Wiggin, Mrs. Kate Douglas**, author, 14-5015-16
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- Wight, Isle of**. Island off the coast of Hampshire, England, from which it is separated by the Solent and Spithead. The climate is mild, and there are many popular watering-places, including Shanklin, Sandown, Ventnor, Ryde and Cowes. Area, 150 square miles; chief town, Newport. The Romans knew it as Vecta or Vectis, a Latinized form of the name, Wit.
- Wigwam**, Indian tent. *Picture*, 16-5835
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- Will or Last Testament**. A document containing the expressed wish of the person writing with regard to the disposal of his or her property after death.
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 Why are some winds warm and some cold? 18-6692
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- Windermere, Lake**. Largest and one of the most beautiful of the English lakes, on the border of Westmoreland and Furness. Drained by the Leven, flowing into Morecambe Bay, it covers about 6 square miles, and is about 10 miles long and a mile broad; its shores are steep and beautifully wooded.
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- Windmill**. A mill or machine moved by the wind and used for grinding flour, pumping water, etc. A windmill has a tall frame bearing a horizontal windshaft attached to a wind wheel or sails. This is connected by gearing to a vertical pump-rod or other machinery. The turning of the sails by the wind starts motion that passes into motive power to run the machinery. toy windmill, how to make from paper, 3-902
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- Windsor**. Berkshire market town containing Windsor Castle, the chief English royal residence. Founded by William the Conqueror, this contains the beautiful Gothic St. George's Chapel, and has a splendid park.
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- Windsor**. Port of Ontario, Canada, standing on the Detroit River, opposite Detroit. It has considerable manufactures and a large transit trade.
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- Winnipeg**. Capital of Manitoba and third largest city in Canada. Founded less than 100 years ago, it has become the grain market of the prairie provinces, and is an important distributing and manufacturing centre.
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- Winnipeg, Lake**. Lake in Manitoba, Canada, covering 9,400 square miles. It receives the waters of Lakes Winnipegosis and Manitoba and the Saskatchewan River, and is itself drained by the Nelson River, which flows into Hudson Bay. geological history, 1-159
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Wire. A piece of metal pulled or drawn out into a slender bar usually round in shape. Formerly wire was made by beating the metal on a grooved anvil, but nowadays it is drawn out by powerful machinery. Silver, platinum, copper, bronze, brass, iron and steel are the metals used for making wire.
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Wisconsin. Forest and prairie state bordering the Great Lakes; area, 56,066 square miles; capital, Madison. Wheat-growing, dairying, lumbering and cattle-raising are important. The manufactures are large and varied. Milwaukee is the largest city and the chief commercial centre. Abbreviation, Wis. Nickname, "Badger State" or "Copper State." Flower, violet. Motto, "Forward." Wisconsin is an Indian name. First settlement, Green Bay, about 1669.
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Witchcraft. The business or art of a wizard or a witch; extraordinary or supernatural power which people were once supposed to obtain by entering into league with the devil. Only ignorant people believe in witchcraft now.
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Wittenberg. Old German town on the Elbe, famous for its associations with Luther. It was on the door of the Schloss-Kirche that he nailed his theses, and in it he and Melancthon are buried.
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- Writ of Assistance.** In American history, a writ issued by a superior colonial court authorizing an officer of the crown to enter and search any premises, in the process of executing the acts of trade. In 1761 the attempt to use such writs was defeated but it was one of the abuses which led to the Revolution.
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- Wurzburg.** Ancient cathedral and university city in northern Bavaria.
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- Wyoming.** Rocky Mountain state; area, 97,914 square miles; capital and largest city, Cheyenne. On an average it is over 7,000 feet above sea-level. Stock-raising, sheep-raising and mining are the most important industries. Abbreviation, Wyo. Nickname, "Equality" (Suffrage Pioneer). Flower, Indian paintbrush. Motto, "Cedant arma togæ" (Let arms yield to the gown). Wyoming means "mountains and valleys alternating." First settlement, Cheyenne, 1867.
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X Y Z Correspondence. In American history the despatches and papers sent from France in 1793 by three American envoys, C. C. Pinckney, John Marshall and Elbridge Gerry, in which were shown the demands for bribes made by three Frenchmen, whose names were hidden under the initials X, Y and Z.

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Ypres. A town in West Flanders, Belgium, on the Yperlie, famous for its manufactures of linen, laces and woollens. Around it were fought some of the most important battles of the World War in 1914, 1915, 1916 and 1917 by British, French and Belgian troops against the Germans. The Canadians held the line in 1915 at Ypres when gas was used for the first time by the Germans. At the end of the war the town was a wreck, as the Germans had consistently bombarded it, destroying the famous cathedral and the Cloth Hall. In army slang Ypres was called "Wipers" by British Tommies.

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Zara. Capital and port of Dalmatia, Jugo-Slavia.

Zealand, or Zeeland. Province in Holland. Area, 707 square miles. Capital, Middelburg.

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INDEX TO POEMS AND NURSERY RHYMES

IN this index, poems are entered under author, under title, and under first line. That is, each poem is entered three times. The arrangement is alphabetic, like a dictionary.

The authors' names are printed in black type, and the titles of all the poems by one man are printed below his name, indented, or set a little to the right.

To find a poem by its title, look under the first word, not counting *The*, *A*, or *An* at the beginning. For instance, a poem named *The Daffodils* would be entered under *Daffodils*.

To find a poem under its first line, look under the first word, and in this case you must include *The*, *A*, or *An* at the beginning, as the whole first line is given, including the initial word. For instance, the first line *The breaking waves dashed high* will be found under the word *The*.

In arranging the entries, all the entries beginning with one word are put together, before any of a longer word that begins with the same letters. For instance, all the entries beginning with *In* come before those beginning with *Into*; all those beginning with *The* come before those beginning with *There*.

Nursery rhymes usually have no author. They are entered under the first line, and under the title if there is one.

The notes at the beginning of the poems tell you something about the author, or about the meaning of the poem, and you will enjoy the poetry more if you read these. These notes may also help you if you are looking for material about an author's life.

We can learn to enjoy poetry more and more, by reading it and by thinking about it. We take pleasure in the sound of the words, in the pictures they call up in our minds, and in the feeling that the poem gives us. A person who reads and loves poetry has all his life a source of pleasure that other people do not have: he sees more of the beauty in the world; he feels more keenly the joy, the sorrow, the picturesqueness, and the nobility of human life. It is worth while to cultivate this love of poetry while you are young, and the collection here gives you many kinds to enjoy.

You will be glad afterward if you learn by heart lines or parts of poems that please you especially. When you are older, it will not be so easy to learn them nor to hold them, but what you learn now will enrich your thinking all your life. For instance, when you are taking a country walk, if you recall a beautiful line about the sky, or some flower or animal, or any other sight, you will find your pleasure heightened. If you learn a line or a verse that makes it easier to be brave, or kindly, or thorough in your work, you will find that often in your life

it will come into your mind and help you. If you have read or learned a poem about some person or historical event, you will be more interested when you meet that person or event in your history lessons or your reading. Another reason for learning bits of poetry is that sometimes we can add to the interest or pleasure of other people in quoting them. In reciting any poetry, be careful to speak it according to its meaning, stopping at the natural places, and not always at the ends of the lines. You are fortunate to have such a collection as this—the best thought of many minds, clothed in beautiful language—and the more you read in it the more you will enjoy it.

If you have a mind that memorizes readily, you might like the plan of learning one poem or quotation a week, and keeping a list of them in a little note-book. It will be interesting to hunt for something new to learn each week. It is important to say them over often, from the list in your note-book, till they are firmly in your mind. After a little while, you will find they almost say themselves, and then you have them surely in your memory treasures. If you have a friend to practice them with, so much the better. Two or three friends, or a little group, could make a Poetry Club; each choose a poem a week, and then recite them to each other. It might be interesting to keep secret what you have chosen, till the meeting.

Above all, be sure to go over the poems till you cannot forget them. Perhaps years from now, when you are a grown person, busy and tired, they will come into your mind like fine music, and you will think, "How glad I am I learned so many poems from *The Book of Knowledge*."

You will find classified lists of poems, beginning on page 7673.

If you want to find poems on any subject, look under the name of the subject in the main index. This Poetry Index gives only authors, titles, and first lines. For instance, if you want all the poems about roses, look under the word *Roses* in the main index, where you will find a heading *Poems about*. But if you want to find a poem with the title *The rose*, you will find that in the Poetry Index. In other words, you look in the Poetry Index for the *exact words* of the title, but you look in the main index for the *subject* that the poem is about.

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Facsimile of the Signatures to the Declaration of Independence July 4, 1776
 from Binns' Celebrated Engraving.

John Penn John Hancock John Hart
 Wm Lloyd Wm Paca
 Sam^d Adams
 Geo. Read Wm Hooper Geo. Clymer
 Steph. Hopkins Tho^s Nelson
 Charles Carroll of Carroll Wm Ellbridge Gerry
 Tho^s M^cKean Roger Sherman Sam^l Huntington
 Wm Whipple Thomas Lynch Jun^r
 Geo Taylor Josiah Bartlett Benjⁿ Franklin
 Wm Williams Rich^d Stockton John Morton
 Oliver Wolcott Jas Witherspoon Geo. Ross
 Tho Stone Samuel Chase Rob^t Treat Paine
 George Wythe Matthew Thornton
 Fran^c Lewis Wm Jefferson Henry Harrison
 Lewis Morris Abra^m Clark Genl^l Livingston
 Arthur Middleton Fra^s Hopkinson
 Geo Walton Carter Braxton James Wilson
 Richard Henry Lee Jun^r Bayward Jun^r
 Benjamin Rush John Adams Rob^t Morris
 Symon Hall Joseph Hewes Button Gwinnett
 Francis Lightfoot Lee
 William Ellery Edward Rutledge Jas^o Smith

Department of State 19 April 1897 Certify that this is a CORRECT copy of the original Declaration of Independence deposited at this Department and that I have compared all the signatures with those of the original and have found them EXACT IDENTICALS John Quincy Adams

THE SIGNERS OF THE DECLARATION OF INDEPENDENCE

As told in the introductory matter, the Declaration of Independence was not signed on July 4, 1776, though it was adopted on that date. The official copy was signed by the members present, August 2, 1776, though some absentees signed later. The official copy bears the signatures of the delegates from New York who did not vote for the Declaration, as their state did not instruct in favor of independence until July 9. On the other hand, Robert Livingston, one of the committee which drafted the Declaration, was called to duties in New York and never signed. Thomas McKean, of Delaware, was present on July 4, but absent later and was permitted to sign in 1781.

Some of the men who signed the Declaration were later prominent under the Confederation and the Constitution. Others were not heard from afterward. Some were old and died before the Constitution was adopted. We see the names of John Adams and Thomas Jefferson, later presidents of the United States. Benjamin Franklin was useful before and after the Declaration. John Hancock was prominent in Massachusetts, afterward as well as before. Samuel Adams, the great agitator, signed the Declaration, but was inclined to oppose the Constitution, though his opposition was not active. Benjamin Harrison was the father of President William Henry Harrison, who was in turn the grandfather of President Benjamin Harrison. Charles Carroll is said to have added the descriptive phrase "of Carrollton" to his name in order that there might be no confusion if the signers should be proscribed by Great Britain. James Wilson led the fight for the adoption of the Constitution in Pennsylvania. Richard Henry Lee did his utmost to prevent Virginia from adopting the Constitution, but later became United States Senator and a strong supporter of the new government. Robert Morris was the financier of the Revolution, and also held office under the Confederation.

TWO IMPORTANT HISTORICAL DOCUMENTS

IN the following pages we are giving you the text of the Declaration of Independence and the Constitution of the United States. Both are important documents in the history of the United States. We have talked about them in different volumes of our book, and here we give you the opportunity to see for yourselves what they say. A real historian always goes back to "original sources" in writing his books, and here you may see two of the documents such as historians use. Perhaps you will find that you had wrong impressions about them. The editor's comments are in different type.

THE DECLARATION OF INDEPENDENCE

IN Volume Four you will find the events leading up to the Declaration of Independence told at length. As you have seen, the adoption of the Declaration was not a sudden act. From the date of the Stamp Act in 1765 the colonists had been actively resisting King and Parliament. They had met in two Continental Congresses in defiance of British rule; blood had been shed at Lexington and Concord, Moore's Creek and Bunker Hill. Ticonderoga and Montreal had been captured, Quebec had been attacked, and Boston had been besieged.

In spite of all these events the colonists had been slow to move for absolute independence, but during these ten years of dispute the belief that separation was necessary had grown stronger. One by one states had declared for independence. On June 7, 1776, Richard Henry Lee, of Virginia, offered a resolution in Congress "that these United Colonies are, and of right ought to be free and independent states." Action was postponed for three weeks in order that the delegates might hear from home. Voting in Congress was by states, and the vote was cast as a majority of the delegates present directed. If the delegates were evenly divided, the state lost its vote. On July 2, 1776, the resolution was taken up in the Committee of the Whole. Nine states voted to adopt the resolution. New York was excused, as the delegates had no instructions; Delaware was divided; and only South Carolina and Pennsylvania were opposed. Strictly speaking, therefore, July 2, 1776, is the day upon which Congress voted for independence. The next day Congress met in regular session, and the three states last named voted formally with the nine in favor of the resolution declaring the United States independent.

Meanwhile, on June 11, a committee consisting of Thomas Jefferson, John Adams, Benjamin Franklin, Roger Sherman and Robert Livingston had been appointed to draw up a declaration of the reasons for separation. This committee reported on June 28, and the document was discussed in the Committee of the Whole before independence had been formally voted. The document itself is the work of Jefferson, though a few corrections were made by other members of the committee of five, and a few amendments by Congress. On July 4, 1776, the corrected and amended Declaration was adopted by vote of the twelve states, but it was signed on that date only by John Hancock, the president of Congress.

On July 9 New York instructed for independence, and on July 19 Congress voted that the document be engrossed on parchment and signed by every member. This copy was made, and on August 2 it was signed by all the members present, including the delegates from New York, who had not voted for independence on July 2, 3 or 4. As you are told under the copy of the signatures, one man did not sign at all, and another signed in 1781.

So you see that independence was declared, not on July 4, but on July 2 and July 3. The formal Declaration was adopted on July 4, but it was not

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signed on that day, but on August 2 and later. The parchment copy of the Declaration is kept in the Department of State. Facsimile copies were later made for the signers and their families, but the ink has now faded to such an extent that many of the signatures can hardly be read. In the text which we give we have followed the spelling and the punctuation of the official engrossed copy, which differs somewhat in these particulars from the original copy adopted by Congress.

THE DECLARATION OF INDEPENDENCE

In Congress, July 4, 1776

THE UNANIMOUS DECLARATION OF THE THIRTEEN UNITED STATES OF AMERICA

WHEN in the Course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the Powers of the earth, the separate and equal station to which the Laws of Nature and of Nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.

We hold these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the consent of the governed, That whenever any Form of Government becomes destructive of these ends, it is the Right of the People to alter or to abolish it, and to institute new Government, laying its foundation on such principles and organizing its powers in such form, as to them shall seem most likely to effect their Safety and Happiness. Prudence, indeed, will dictate that Governments long established should not be changed for light and transient causes; and accordingly all experience hath shown, that mankind are more disposed to suffer, while evils are sufferable, than to right themselves by abolishing the forms to which they are accustomed. But when a long train of abuses and usurpations, pursuing invariably the same Object evinces a design to reduce them under absolute Despotism, it is their right, it is their duty, to throw off such Government, and to provide new Guards for their future security.—Such has been the patient sufferance of these Colonies; and such is now the necessity which constrains them to alter their former Systems of Government. The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute Tyranny over these States. To provide this, let Facts be submitted to a candid world.

He has refused his Assent to Laws, the most wholesome and necessary for the public good.

He has forbidden his Governors to pass Laws of immediate and pressing importance, unless suspended in their operation till his Assent should be obtained; and when so suspended, he has utterly neglected to attend to them.

He has refused to pass other Laws for the accommodation of large districts of people, unless those people would relinquish the right of Representation in the Legislature, a right inestimable to them and formidable to tyrants only.

THE DECLARATION OF INDEPENDENCE

He has called together legislative bodies at places unusual, uncomfortable, and distant from the depository of their Public Records, for the sole purpose of fatiguing them into compliance with his measures.

He has dissolved Representative Houses repeatedly, for opposing with manly firmness his invasions on the rights of the people.

He has refused for a long time, after such dissolutions, to cause others to be elected; whereby the Legislative Powers, incapable of Annihilation, have returned to the People at large for their exercise; the State remaining in the mean time exposed to all the dangers of invasion from without, and convulsions within.

He has endeavoured to prevent the population of these States; for that purpose obstructing the Laws for Naturalization of Foreigners; refusing to pass others to encourage their migration hither, and raising the conditions of new Appropriations of Lands.

He has obstructed the Administration of Justice, by refusing his Assent to Laws for establishing Judiciary Powers.

He has made Judges dependent on his Will alone, for the tenure of their offices, and the amount and payment of their salaries.

He has erected a multitude of New Offices, and sent hither swarms of Officers to harass our People, and eat out their substance.

He has kept among us, in times of peace, Standing Armies without the Consent of our legislature.

He has affected to render the Military independent of and superior to the Civil Power.

He has combined with others to subject us to a jurisdiction foreign to our constitution, and unacknowledged by our laws; giving his Assent to their acts of pretended legislation:

For quartering large bodies of armed troops among us:

For protecting them, by a mock Trial, from Punishment for any Murders which they should commit on the Inhabitants of these States:

For cutting off of Trade with all parts of the world:

For imposing taxes on us without our Consent:

For depriving us in many cases, of the benefits of Trial by Jury:

For transporting us beyond Seas to be tried for pretended offenses:

For abolishing the free System of English Laws in a neighbouring Province, establishing therein an Arbitrary government, and enlarging its Boundaries so as to render it at once an example and fit instrument for introducing the same absolute rule into these Colonies:

For taking away our Charters, abolishing our most valuable Laws, and altering fundamentally the Forms of our Governments:

For suspending our own Legislature, and declaring themselves invested with Power to legislate for us in all cases whatsoever.

He has abdicated Government here, by declaring us out of his Protection and waging War against us.

He has plundered our seas, ravaged our Coasts, burnt our towns, and destroyed the lives of our people.

He is at this time transporting large armies of foreign mercenaries to compleat the works of death, desolation and tyranny, already begun with circum-

THE DECLARATION OF INDEPENDENCE

stances of Cruelty & perfidy scarcely paralleled in the most barbarous ages, and totally unworthy the Head of a civilized nation.

He has constrained our fellow Citizens taken Captive on the high Seas to bear Arms against their Country, to become the executioners of their friends and Brethren, or to fall themselves by their Hands.

He has excited domestic insurrections amongst us, and has endeavoured to bring on the inhabitants of our frontiers, the merciless Indian Savages, whose known rule of warfare, is an undistinguished destruction of all ages, sexes and conditions.

In every stage of these Oppressions We have Petitioned for Redress in the most humble terms: Our repeated Petitions have been answered only by repeated injury. A Prince, whose character is thus marked by every act which may define a Tyrant, is unfit to be the ruler of a free People.

Nor have We been wanting in attention to our British brethren. We have warned them from time to time of attempts by their legislature to extend an unwarrantable jurisdiction over us. We have reminded them of the circumstances of our emigration and settlement here. We have appealed to their native justice and magnanimity, and we have conjured them by the ties of our common kindred to disavow these usurpations, which, would inevitably interrupt our connections and correspondence. They too have been deaf to the voice of justice and of consanguinity. We must, therefore, acquiesce in the necessity, which denounces our Separation, and hold them, as we hold the rest of mankind, Enemies in War, in Peace Friends.

We, therefore, the Representatives of the united States of America, in General Congress, Assembled, appealing to the Supreme Judge of the world for the rectitude of our intentions, do, in the Name, and by Authority of the good People of these Colonies, solemnly publish and declare, That these United Colonies are, and of Right ought to be Free and Independent States; that they are Absolved from all Allegiance to the British Crown, and that all political connection between them and the State of Great Britain, is and ought to be totally dissolved; and that as Free and Independent States, they have full Power to levy War, conclude Peace, contract Alliances, establish Commerce, and to do all other Acts and Things which Independent States may of right do. And for the support of this Declaration, with a firm reliance on the Protection of Divine Providence, we mutually pledge to each other our Lives, our Fortunes and our sacred Honor.

JOHN HANCOCK.

*New Hampshire **

JOSIAH BARTLETT
WM. WHIPPLE
MATTHEW THORNTON

Massachusetts Bay

SAML. ADAMS
JOHN ADAMS
ROBT. TREAT PAINE
ELBRIDGE GERRY

Rhode Island

STEP. HOPKINS
WILLIAM ELLERY

Connecticut

ROGER SHERMAN
SAM'EL HUNTINGTON
WM. WILLIAMS
OLIVER WOLCOTT

* This arrangement of the names is made for convenience. The states are not mentioned in the original.

THE DECLARATION OF INDEPENDENCE

New York

WM. FLOYD
PHIL. LIVINGSTON
FRANS. LEWIS
LEWIS MORRIS

New Jersey

RICHD. STOCKTON
JNO. WITHERSPOON
FRAS. HOPKINSON
JOHN HART
ABRA. CLARK

Pennsylvania

ROBT. MORRIS
BENJAMIN RUSH
BENJA. FRANKLIN
JOHN MORTON
GEO. CLYMER
JAS. SMITH
GEO. TAYLOR
JAMES WILSON
GEO. ROSS

Delaware

CÆSAR RODNEY
GEO. READ
THO. M'KEAN

Maryland

SAMUEL CHASE
WM. PACA
THOS. STONE
CHARLES CARROLL of Carrollton

Virginia

GEORGE WYTHE
RICHARD HENRY LEE
TH. JEFFERSON
BENJA. HARRISON
THOS. NELSON, jr.
FRANCIS LIGHTFOOT LEE
CARTER BRAXTON

North Carolina

WM. HOOPER
JOSEPH HEWES
JOHN PENN

South Carolina

EDWARD RUTLEDGE
THOS. HEYWARD, Junr.
THOMAS LYNCH, Junr.
ARTHUR MIDDLETON

Georgia

BUTTON GWINNETT
LYMAN HALL
GEO. WALTON

THE CONSTITUTION

THE Second Continental Congress, which planned resistance to Great Britain, appointed George Washington commander-in-chief, and adopted the Declaration of Independence, was a revolutionary body, chosen in defiance of Great Britain. It was composed of delegates appointed by the separate states, who sat together in one house. We have told you that each state had one vote, which was cast as a majority of the delegates present decided. There was no central government, and Congress had no power over the separate states.

After the Declaration of Independence it was determined to frame a written agreement between the states, a sort of constitution. A committee was appointed and reported a plan. This was known as the Articles of Confederation, and with some changes was adopted by Congress in November, 1777, and sent to the separate states for their approval. All the states except Maryland ratified the articles within eighteen months. This state had no claim to any lands beyond the Alleghenies and refused to ratify until the other states promised to surrender their claims to western lands to Congress. This was finally done and Maryland ratified in 1781, and then the Articles of Confederation went into effect practically at the end of the Revolution. On page 1696 we tell you something of the Articles.

As you can see, such a government can hardly be called a government at all. It could not get the money to meet its obligations and had the respect neither of the people of the United States nor of other nations. States often failed to send delegates to Congress. Sometimes as few as twenty, representing ten states or fewer, were present. There was much disorder in the country and many disputes between states. Some of them threatened to go to war with other states. Thoughtful men feared that the independence won with such difficulty would be lost if the states did not form some closer union.

The constant disputes between the states led Virginia to ask them to send delegates to a meeting in Annapolis, Maryland, in 1786 to discuss uniform laws about trade. Only five states were represented, and no action was taken, but the delegates discussed the misfortunes of the country and all agreed that the Articles must be amended. So they adopted a resolution, drawn up by Alexander Hamilton, asking that the states send representatives to a convention to meet in Philadelphia in May, 1787. Congress approved the idea, and all the states except Rhode Island finally elected delegates, though New Hampshire was not represented until many important decisions had already been made.

The Convention had been called to meet May 14, 1787, but only a few delegates were present, and not until May 25 was the Convention called to order in Independence Hall. George Washington was chosen president, and it was voted to hold the meeting behind closed doors. Fortunately several of the delegates, particularly Madison, kept full notes of the proceedings which were published long afterward, and so we know almost all that happened during those four months.

Fifty-five delegates from twelve states were present at some time or other during the Convention, though not all of them took an active part. On the whole it was an unusual body of men representing the wealth and intelligence of the states. Twenty-nine were college-trained, three were professors of law, and one was a college president. Thirty-one had studied law, twelve of them in Europe. Thirty-nine had been members of Congress, and eight had helped to frame their state constitutions. Several had been, or were at the time, governors of their states.

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The oldest member was Benjamin Franklin, over eighty-one, but Jonathan Dayton of New Jersey was only twenty-seven, Charles Pinckney of South Carolina was twenty-nine, and Alexander Hamilton was thirty. James Madison, who was the most influential member of the Convention, was thirty-six, and Gouverneur Morris of Pennsylvania, who is responsible for the exact wording of many sections, was thirty-five. The average age was about forty.

At the beginning of the discussions the "Virginia Plan" was offered and received the support of the larger states. Representation in the lower house was to be according to population, and the lower house was to elect the upper, and both together would choose the president. Since Massachusetts, Pennsylvania, Virginia and North Carolina had much more than half the population, this plan would have given entire control to the larger states. The smaller states objected and offered the "New Jersey Plan," which strengthened the Articles of Confederation, but left undisturbed the equal vote of the states. To avoid breaking up the Convention the "Connecticut Compromise" was adopted after much debate. This gave equal representation in the Senate, but representation according to population in the House of Representatives.

Already some people were beginning to doubt the wisdom of slavery, but some of the Southern states said that it was necessary. So slavery was not abolished, and Congress was forbidden to interfere with the slave trade before 1808. Next came the question whether slaves should be counted when fixing representation. The South said yes; the North said no. After discussion it was decided that in levying direct taxes and fixing representations, a hundred slaves should count as sixty white persons. This is the three-fifths rule of which you have heard.

These are only a few of the compromises of the Constitution. Nearly every sentence, almost every word, was the occasion of discussion, and many decisions were later modified when new arguments were presented. When the majority had finally come to general agreement the whole was referred to a committee which smoothed out the rough places and arranged the sections. Their work was then discussed line by line by the Convention and referred to the Committee on Style, of which Gouverneur Morris was the leading member. The document was again revised by the Convention and engrossed upon parchment.

The delegates had worked all through the hot summer of 1787. Some became displeased because the Constitution seemed to provide for too strong a government, and went home. Forty-two remained till the end. Three of them, George Mason and Edmund Randolph of Virginia and Elbridge Gerry of Massachusetts, at the last felt that they could not sign the instrument. The remaining thirty-nine, representing every one of the twelve states sending delegates, signed the finished paper on September 17, 1789.

It was then sent to Congress, which sent it to the states. The Convention had voted that it should go into effect when ratified by nine states, but it was not at all certain that a sufficient number of states would accept the instrument, as some of the most prominent men in the country were opposed. However, Delaware began, December 7, 1787, and Pennsylvania followed on December 12, and New Jersey on December 18, 1787. With the new year Georgia ratified (January 2) and Connecticut (January 9). In these states there was little opposition, but in Massachusetts the result was doubtful. Finally (February 6) it was ratified by a narrow majority, with the recommendation that several amendments be added as soon as possible. Maryland followed (April 28), and South Carolina ratified (May 23), but also recommended amendments. New Hampshire held back until it saw what Massachusetts would do, but ratified on June 21, making the ninth state. Virginia discussed the matter for more than three weeks, but finally ratified on June 25, also recommending amendments.

Though more than a sufficient number of states had ratified, the position

THE CONSTITUTION OF THE UNITED STATES

of New York between New England and the other states made it especially important. Sentiment in the state was generally opposed to the Constitution. Hamilton, Madison and John Jay published in the newspapers a series of eighty-five essays advocating adoption. The book made from them is called *The Federalist* and even to-day is one of the best works upon the Constitution. In the Convention Hamilton fought hard, and did convert some opponents. The fact that ten states had ratified and that New York would be left out of the government if it failed to ratify also had its effect. So finally (July 26) the convention approved.

Two states only were left outside, North Carolina and Rhode Island. In the former state the convention refused to ratify, saying that the rights of the states and the people were not sufficiently guarded. Twenty-six amendments were suggested and the Convention adjourned. Rhode Island submitted the question of ratification to the people, who voted against it by a large majority. So these two states had no part in the first elections or in organizing the new government. North Carolina ratified in November, 1789, but Rhode Island did not ratify until May, 1790, and then by a majority of only two votes.

What Is the Constitution

The Confederation was simply an agreement between separate states which preserved all their independence. The Constitution is more than this, for the states surrendered some of their rights to the new general government. It is, in fact, a compromise between a purely federal government and a strong centralized government. Madison said that the new government was partly national and partly federal, and to this day there is no better definition.

Certain matters, such as peace and war, regulation of commerce, navigation laws, coinage, the post office and the like, belong to the nation, which has the power to levy and collect taxes. Others, such as the ordinary protection of life and property, education, charity, roads and bridges, belong to the state, which also reserves all other powers not given to the national government by the Constitution. Some questions may interest both state and nation, and at different times they have caused trouble.

As you read the Constitution you will see that Article I has to do with the election, powers and duties of Congress; Article II, with the election, powers and duties of the President and other executive officers; and Article III, with the judicial power. Articles IV, V and VI contain many miscellaneous provisions, including the methods of amendment, and Article VII states how the instrument shall go into effect.

What Are the Sources of the Constitution

There is no one source of the Constitution, and, in fact, there is little in it that is entirely new. Some of the delegates were students of government and could discuss every government the world had known up to that time, and were familiar with the writings of philosophers and statesmen. Then, too, they knew English history and were familiar with the struggle of the English people toward freedom. They had drawn up the Articles of Confederation, and many provisions in that instrument were transferred to the new document. There are some entirely new ideas, but not many. The chief source was the experience of the colonists in America. We sometimes forget that the history of several of the states is longer before 1787 than since. In every colony the people enjoyed more or less self-government, and they had drawn up state constitutions after the Declaration of Independence. Experience and knowledge gained from all these sources went into the making of the Constitution. The wording of the document owes more to Gouverneur Morris than to any other individual. He was the leading member of the committee which put the decisions into final form.

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Probably not a single member of the Convention was entirely satisfied with the document when it was finally adopted. For example, Hamilton wished the general government to have much more power, and he would have had most of the high officials chosen for life or good behavior. Gouverneur Morris felt much the same way. On the other hand, many men doubted whether the rights of the states and the people had been sufficiently protected. Benjamin Franklin expressed the feeling of many when he said: "I confess there are several parts of the Constitution which I do not at present approve, but I am not sure that I shall never approve them. . . . I doubt too whether any other convention we can obtain may be able to make a better Constitution. . . . Thus I consent, sir, to this Constitution because I expect no better and because I am not sure that it is not the best."

Washington himself, in January, 1788, before Virginia had ratified the instrument said in a letter: "There are some things in the new form I will readily acknowledge, which never did and I am persuaded never will, obtain my cordial approbation, but I then did concede and now do most firmly believe that in the aggregate it is the best Constitution that can be obtained at this epoch and that this or a dissolution of the Union awaits our choice and are the only alternatives before us."

However, as the instrument was discussed during the months after the adjournment of the Convention, many who had been disposed to criticize began to realize the greatness of the document. Thus we find Washington writing somewhat later: "It appears to me little short of a miracle that the delegates from so many different States (which States you know are also different from each other in their manners, circumstances and prejudices) should unite in forming a system of national government so little liable to well-founded objections. Nor am I yet such an enthusiastic, partial or un-discriminating admirer of it as not to perceive it is tinctured with some real (though not radical) defects."

The Amendments to the Constitution

Feeling as they did about their work, it is not surprising that the members provided for amendments. In Article V two methods are suggested. Two-thirds of each House may pass an amendment and send it to the states, or if the legislatures of two-thirds of the states request it, Congress must call a convention to propose amendments. Amendments adopted in either way become a part of the Constitution if adopted by the legislatures or by special conventions in three-fourths of the states. All the amendments have been adopted by the first method.

Many amendments have been proposed, but only nineteen have been adopted. The first ten were adopted within less than three years after the new government began, and are really a part of the Constitution itself. The Eleventh was adopted in 1798, the Twelfth in 1804. Then for more than sixty years there was no amendment. Between 1865 and 1870 came the three Civil War amendments, then two in 1913, one in 1919 (though it did not go into effect until 1920), and the Nineteenth in 1920. Immediately after the amendments we tell something of the history of each.

What the Test of Time Has Shown

Though many of the makers of the Constitution were not enthusiastic over the result of their labors, it has stood the test of time, and that is the hardest test. Though we speak of the United States as a new country, our government is one of the oldest, if not the oldest, in existence, for the government of Great Britain has been so much changed in the last hundred years that it is hardly the same, and the present governments of all the other European states are younger than ours. It is certainly the oldest written Constitution in the world.

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When the Constitution was adopted, republics were few in number and small in area and population. Prophecies of failure were freely made, for Europe could not understand how a country could get along without a king. Now monarchy is becoming the unusual form of government. Many of the republics established later took ideas from the Constitution, though none adopted it without change. It was also studied in drawing up forms of government for the self-governing dominions under the British Crown, though of course there are many differences. When the Union of South Africa was being discussed, it is said, however, that *The Federalist* was quoted oftener than any other work upon government. It is interesting to note that in Canada the powers not specifically given to the Provinces are reserved to the Dominion. Australia, on the other hand, followed the example of the United States, and powers not specifically given to the Commonwealth are reserved to the States. Ireland of course is not composed of different states, and this question did not arise.

In all these members of the "British Commonwealth of Nations" the Governor-General is appointed by the Crown, and in none of them is he anything like so powerful as the President of the United States. All of them have the "parliamentary system," which means that the legislative controls the executive. (See page 1833.) In the United States when the Congress and the President differ in politics the whole business of the nation may be brought almost to a standstill. This does not happen under the parliamentary system. The new republics which have sprung up in Europe as a result of the World War have generally adopted the parliamentary system. Dozens of republics have been established since the Fathers of the Constitution finished their work.

It was a new kind of government, as Madison said, and has proved both stable and flexible. It has been strong enough to stand the strain of foreign and domestic wars. It served for a nation of thirteen weak states along the Atlantic with less than 4,000,000 people. It continues to serve for a nation of forty-eight states stretching from ocean to ocean, with nearly 120,000,000 people, and with possessions beyond the seas. The young nation was almost entirely engaged in agriculture; the nation of to-day has become the greatest manufacturing country in the world. With little change the same Constitution and form of government have served both.

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WE the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquillity, provide for the common defense, promote the general Welfare, and secure the Blessings of Liberty, to ourselves and our Posterity, do ordain and establish this CONSTITUTION for the United States of America.

Note. The original draft of the Constitution read: "We the People of the States of New Hampshire, Massachusetts," etc. As it was probable that some of the states would not ratify, the names of the states were omitted in the final draft, but there was no intention of overruling the powers of the states.

ARTICLE I

Legislative Powers—The House of Representatives

SECTION 1. All legislative Powers herein granted shall be vested in a Congress of the United States, which shall consist of a Senate and House of Representatives.

SECTION 2. The House of Representatives shall be composed of Members chosen every second Year by the People of the several States, and the Electors in each State shall have the Qualifications requisite for Electors of the most numerous Branch of the State Legislature.

No person shall be a Representative who shall not have attained to the Age of twenty-five Years, and been seven Years a Citizen of the United States, and who shall not, when elected, be an Inhabitant of that State in which he shall be chosen.

Representatives and direct Taxes shall be apportioned among the several States which may be included within this Union, according to their respective numbers, which shall be determined by adding to the whole Number of free Persons, including those bound to Service for a Term of Years, and excluding Indians not taxed, three fifths of all other Persons. The actual Enumeration shall be made within three Years after the first Meeting of the Congress of the United States, and within every subsequent Term of ten Years, in such Manner as they shall by Law direct. The number of Representatives shall not exceed one for every thirty Thousand, but each State shall have at Least one Representative; and until such enumeration shall be made, the State of New Hampshire shall be entitled to chuse three, Massachusetts eight, Rhode Island and Providence Plantations one, Connecticut five, New York six, New Jersey four, Pennsylvania eight, Delaware one, Maryland six, Virginia ten, North Carolina five, South Carolina five, and Georgia three.

Note. Nearly all of this paragraph has been superseded by amendments or by circumstances. The income tax, which has been declared a direct tax, need not now be levied according to population (Amendment XVI). The three-fifths rule no longer

* Reprinted from the text issued by the State Department.

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holds (Amendments XIII and XIV). The population to a representative is now over 200,000. The assignment of representatives to the states was changed after the first census of 1790 and every ten years afterward.

When vacancies happen in the Representation from any State, the Executive Authority thereof shall issue Writs of Election to fill such Vacancies.

The House of Representatives shall chuse their Speaker and other Officers; and shall have the sole Power of Impeachment.

The Senate—Election, Qualifications and Special Powers

SECTION 3. The Senate of the United States shall be composed of two Senators from each State, chosen by the Legislature thereof, for Six Years; and each Senator shall have one Vote.

Note. See Amendment XVII.

Immediately after they shall be assembled in Consequence of the first Election, they shall be divided as equally as may be into three Classes. The Seats of the Senators of the first Class shall be vacated at the Expiration of the second Year, of the second Class at the Expiration of the fourth Year, and of the third Class at the Expiration of the sixth Year, so that one third may be chosen every second Year; and if Vacancies happen by Resignation, or otherwise, during the Recess of the Legislature of any State, the Executive thereof may make temporary Appointments until the next Meeting of the Legislature, which shall then fill such Vacancies.

Note. These two paragraphs have been modified by Amendment XVII, which provides for the election of senators by the people.

No Person shall be a Senator who shall not have attained to the Age of thirty Years, and been nine Years a Citizen of the United States, and who shall not, when elected, be an Inhabitant of that State for which he shall be chosen.

The Vice President of the United States shall be President of the Senate, but shall have no Vote, unless they be equally divided.

The Senate shall chuse their other Officers, and also a President pro tempore, in the Absence of the Vice President, or when he shall exercise the Office of President of the United States.

The Senate shall have the sole Power to try all Impeachments. When sitting for that purpose, they shall be on Oath or Affirmation. When the President of the United States is tried, the Chief Justice shall preside: And no Person shall be convicted without the Concurrence of two thirds of the Members present.

Judgment in Cases of Impeachment shall not extend further than to removal from Office, and disqualification to hold and enjoy any Office of honor Trust or Profit under the United States: but the Party convicted shall nevertheless be liable and subject to Indictment, Trial, Judgment and Punishment, according to law.

Note. Only a few officers have been impeached, and fewer have been convicted. In several cases the officer resigned, and therefore was not tried. One president, Andrew Johnson, was impeached but was not convicted, as you may read on page 2444. As you read in the last paragraph of Section 2, the House of Representatives must vote to impeach. That body also appoints a committee to prosecute the charges before the Senate sitting as a court.

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SECTION 4. The Times, Places and Manner of holding Elections for Senators and Representatives, shall be prescribed in each State by the Legislature thereof; but the Congress may at any time by Law make or alter such Regulations, except as to the Places of chusing Senators.

Note. Congress in 1845 fixed the Tuesday following the first Monday in November as the date for choosing electors, in years that can be divided by four. In 1872 it was ordered that Representatives be elected on this date in the even years, though a few states were later permitted to elect earlier. Nearly all the states have adopted this day for state elections as well.

The Congress shall assemble at least once in every Year, and such Meeting shall be on the first Monday in December, unless they shall by Law appoint a different Day.

Congress—Membership, Rules, Procedure, Privileges

SECTION 5. Each House shall be the Judge of the Elections, Returns and Qualifications of its own Members, and a Majority of each shall constitute a Quorum to do Business; but a smaller Number may adjourn from day to day, and may be authorized to compel the Attendance of absent Members, in such Manner, and under such Penalties as each House may provide.

Each House may determine the Rules of its Proceedings, Punish its Members for disorderly behaviour, and, with the Concurrence of two thirds, expel a member.

Each House shall keep a Journal of its Proceedings, and from time to time publish the same, excepting such Parts as may in their Judgment require Secrecy; and the Yeas and Nays of the Members of either House on any question shall, at the Desire of one fifth of those Present, be entered on the Journal.

Neither House, during the Session of Congress, shall, without the Consent of the other, adjourn for more than three days, nor to any other Place than that in which the two Houses shall be sitting.

SECTION 6. The Senators and Representatives shall receive a Compensation for their Services, to be ascertained by Law, and paid out of the Treasury of the United States. They shall in all Cases, except Treason, Felony and Breach of the Peace, be privileged from Arrest during their Attendance at the Session of their respective Houses, and in going to and returning from the same; and for any Speech or Debate in either House, they shall not be questioned in any other Place.

No Senator or Representative shall, during the Time for which he was elected, be appointed to any civil Office under the Authority of the United States, which shall have been created, or the Emoluments whereof shall have been increased during such time; and no Person holding any Office under the United States, shall be a Member of either House during his Continuance in Office.

How a Bill Becomes a Law

SECTION 7. All Bills for raising Revenue shall originate in the House of Representatives; but the Senate may propose or concur with Amendments as on other Bills.

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Every Bill which shall have passed the House of Representatives and the Senate, shall, before it becomes a Law, be presented to the President of the United States; If he approve he shall sign it, but if not he shall return it, with his Objections, to that House in which it shall have originated, who shall enter the Objections at large on their Journal, and proceed to reconsider it. If after such Reconsideration two thirds of that House shall agree to pass the Bill, it shall be sent, together with the Objections, to the other House, by which it shall likewise be reconsidered, and if approved by two thirds of that House, it shall become a law. But in all such Cases the Votes of both Houses shall be determined by Yeas and Nays, and the Names of the Persons voting for and against the Bill shall be entered on the Journal of each House respectively. If any Bill shall not be returned by the President within ten Days (Sundays excepted) after it shall have been presented to him, the same shall be a Law, in like manner as if he had signed it, unless the Congress by their Adjournment prevent its Return, in which Case it shall not be a Law.

Every Order, Resolution, or Vote to which the Concurrence of the Senate and House of Representatives may be necessary (except on a question of Adjournment) shall be presented to the President of the United States; and before the Same shall take Effect, shall be approved by him, or being disapproved by him, shall be repassed by two thirds of the Senate and House of Representatives, according to the Rules and Limitations prescribed in the Case of a Bill.

Specific Powers of Congress

SECTION 8. The Congress shall have Power To lay and collect Taxes, Duties, Imposts and Excises, to pay the Debts and provide for the common Defence and general Welfare of the United States; but all Duties, Imposts and Excises shall be uniform throughout the United States;

To borrow Money on the credit of the United States;

To regulate Commerce with foreign Nations, and among the several States, and with the Indian Tribes;

To establish an uniform Rule of Naturalization, and uniform Laws on the subject of Bankruptcies throughout the United States;

To coin Money, regulate the Value thereof, and of foreign Coin, and fix the Standard of Weights and Measures;

To provide for the Punishment of counterfeiting the securities and current Coin of the United States;

To establish Post Offices and post Roads;

To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries;

To constitute Tribunals inferior to the supreme Court;

To define and punish Piracies and Felonies committed on the high Seas, and Offences against the Law of Nations;

To declare War, grant Letters of Marque and Reprisal, and make Rules concerning Captures on Land and Water;

To raise and support Armies, but no Appropriation of Money to that Use shall be for a longer Term than two Years;

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To provide and maintain a Navy;

To make Rules for the Government and Regulation of the land and naval Forces;

To provide for calling forth the Militia to execute the Laws of the Union, suppress Insurrections and repel Invasions;

To provide for organizing, arming, and disciplining, the Militia, and for governing such Part of them as may be employed in the Service of the United States, reserving to the States respectively, the Appointment of the Officers, and the Authority of training the Militia according to the discipline prescribed by Congress;

To exercise exclusive Legislation in all Cases whatsoever, over such District (not exceeding ten Miles square) as may, by Cession of particular States, and the Acceptance of Congress, become the Seat of the Government of the United States, and to exercise like Authority over all Places purchased by the Consent of the Legislature of the State in which the same shall be, for the Erection of Forts, Magazines, Arsenals, dock-Yards, and other needful Buildings;—And

To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers, and all other Powers vested by this Constitution in the Government of the United States, or in any Department or Officer thereof.

Note. Congress has exercised many powers not specifically mentioned above or elsewhere in the Constitution. For the most part they have been based upon the words "necessary and proper" in the paragraph above and upon the command to provide for the "general welfare" in the first paragraph of the section. The next question is what things are necessary and proper. Ever since the Constitution was adopted men have differed as to the answer. The Supreme Court has final decision. If the people are not satisfied the Constitution can be changed by amendment. Examples of such changes are the Thirteenth and the Sixteenth amendments.

Things Forbidden to Congress

SECTION 9. The Migration or Importation of such Persons as any of the States now existing shall think proper to admit, shall not be prohibited by the Congress prior to the Year one thousand eight hundred and eight, but a Tax or duty may be imposed on such Importation, not exceeding ten dollars for each Person.

Note. This paragraph became meaningless on the date mentioned.

The Privilege of the Writ of Habeas Corpus shall not be suspended, unless when in Cases of Rebellion or Invasion the public Safety may require it.

No Bill of Attainder or *ex post facto* Law shall be passed.

No Capitation, or other direct, Tax, shall be laid, unless in Proportion to the Census or Enumeration hereinbefore directed to be taken.

Note. The direct-tax provision of this paragraph has been modified by the Sixteenth Amendment.

No Tax or Duty shall be laid on Articles exported from any State.

No Preference shall be given by any Regulation of Commerce or Revenue to the Ports of one State over those of another: nor shall Vessels bound to, or from, one State, be obliged to enter, clear, or pay Duties in another.

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No Money shall be drawn from the Treasury, but in Consequence of Appropriations made by Law; and a regular Statement and Account of the Receipts and Expenditures of all public Money shall be published from time to time.

No Title of Nobility shall be granted by the United States: and no Persons holding any Office of Profit or Trust under them, shall, without the Consent of the Congress, accept of any present, Emolument, Office, or Title, of any kind whatever, from any King, Prince or foreign State.

Things Forbidden to the States

SECTION 10. No State shall enter into any Treaty, Alliance, or Confederation; grant Letters of Marque and Reprisal; coin Money; emit Bills of Credit; make any thing but gold and silver Coin a Tender in Payment of Debts; pass any Bill of Attainder, ex post facto Law or Law impairing the Obligation of Contracts, or grant any Title of Nobility.

No State shall, without the Consent of the Congress, lay any Imposts or Duties on Imports or Exports except what may be absolutely necessary for executing its inspection Laws; and the net Produce of all Duties and Imposts, laid by any State on Imports or Exports, shall be for the Use of the Treasury of the United States; and all such Laws shall be subject to the Revision and Control of the Congress.

No State shall, without the Consent of Congress, lay any Duty of Tonnage, keep Troops, or Ships of War in time of Peace, enter into any Agreement or Compact with another State, or with a foreign Power, or engage in War, unless actually invaded, or in such imminent Danger as will not admit of Delay.

Note. Most of the things mentioned above as forbidden to the states are powers which they had exercised, or might exercise, under the Confederation, and which they here gave up to the general government.

ARTICLE II

The President—Election, Qualifications, Succession

SECTION 1. The executive Power shall be vested in a President of the United States of America. He shall hold his Office during the Term of four Years, and, together with the Vice President, chosen for the same Term, be elected as follows:

Note. The first draft made the term seven years and forbade re-election. This was changed when the method of election was changed.

Each State shall appoint, in such Manner as the Legislature thereof may direct, a Number of Electors, equal to the whole Number of Senators and Representatives to which the State may be entitled in the Congress: but no Senator or Representative, or Person holding an Office of Trust or Profit under the United States, shall be appointed an Elector.

Note. This paragraph was the result of much discussion. The convention first voted that the president should be elected by Congress. Later it was suggested that he be elected by the governors of the states, but some of the members were not satisfied with either method. It seemed impossible for the people to make a wise choice, as there were few newspapers and the citizen of Georgia knew less of New Hampshire than he now knows of Siam. So finally it was agreed that in each state

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prominent citizens should be elected, and these should meet in the state capital, look over all the great men in the country and make a free choice. Everyone was pleased with this plan, but by 1800 parties had arisen and the system broke down. Though an elector cannot be punished if he does not vote for the party nominee, he is expected to do so, and always does.

The Electors shall meet in their respective States, and vote by Ballot for two Persons, of whom one at least shall not be an Inhabitant of the same State with themselves. And they shall make a List of all the Persons voted for, and of the Number of Votes for each; which List they shall sign and certify, and transmit sealed to the Seat of the Government of the United States, directed to the President of the Senate. The President of the Senate, shall, in the Presence of the Senate and House of Representatives, open all the Certificates, and the Votes shall then be counted. The Person having the greatest Number of Votes shall be the President, if such Number be a Majority of the whole Number of Electors appointed; and if there be more than one who have such Majority, and have an equal Number of Votes, then the House of Representatives shall immediately chuse by Ballot one of them for President; and if no Person have a Majority, then from the five highest on the List the said House shall in like Manner chuse the President. But in chusing the President, the Votes shall be taken by States, the Representation from each State having one Vote; A quorum for this Purpose shall consist of a Member or Members from two thirds of the States, and a Majority of all the States shall be necessary to a Choice. In every Case, after the Choice of the President, the Person having the greatest Number of Votes of the Electors shall be the Vice President. But if there should remain two or more who have equal Votes, the Senate shall chuse from them by Ballot the Vice President.

Note. This paragraph was superseded in 1804 by the Twelfth Amendment.

The Congress may determine the Time of chusing the Electors, and the Day on which they shall give their Votes; which Day shall be the same throughout the United States.

See Note Art. I, Sec. 4, above.

No Person except a natural born Citizen, or a Citizen of the United States, at the time of the Adoption of this Constitution, shall be eligible to the Office of President; neither shall any Person be eligible to that Office who shall not have attained to the Age of thirty-five Years, and been fourteen Years a Resident within the United States.

Note. Though it was possible for a foreign-born citizen to become president in the early years of the nation, none was ever elected. All of our presidents except Roosevelt were over forty-five when inaugurated, and most of them were over fifty. See pages 3951-54.

In Case of the Removal of the President from Office, or of his Death, Resignation, or Inability to discharge the Powers and Duties of the said Office, the Same shall devolve on the Vice President, and the Congress may by Law provide for the Case of Removal, Death, Resignation or Inability, both of the President and Vice President, declaring what Officer shall then act as President and such Officer shall act accordingly, until the Disability be removed, or a President shall be elected.

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Note. In 1791 Congress provided that in case of the death or disability of both president and vice-president, the president pro-tempore of the senate, and after him the speaker of the House of Representatives, should act as president. In 1886 the Presidential Succession Act provided that the members of the Cabinet (if eligible) should succeed in the order of the creation of their offices. The order of creation is State, Treasury, War, Attorney-General, Postmaster General, Navy, and Interior. The departments not mentioned, Agriculture, Commerce, and Labor, have been created since 1886.

The President shall at stated Times, receive for his **Services**, a Compensation, which shall neither be Increased nor diminished during the Period for which he shall have been elected, and he shall not receive within that Period any other Emolument from the United States, or any of them.

Note. Up to the beginning of Grant's second term the president received \$25,000 a year. From that time until 1909 the salary was \$50,000. Since 1909 it has been \$75,000, with \$25,000 more for traveling expenses. In addition he has the use of the White House, some of the expenses of which are paid by the nation.

Before he enter on the Execution of his Office, he shall take the following Oath or Affirmation:—

“I do solemnly swear (or affirm) that I will faithfully execute the Office of President of the United States, and will to the best of my Ability, preserve, protect, and defend the Constitution of the United States.”

The Powers and Duties of the President

SECTION 2. The President shall be Commander in Chief of the Army and Navy of the United States, and of the Militia of the several States, when called into the actual Service of the United States; he may require the Opinion, in writing, of the principal Officer in each of the executive Departments, upon any Subject relating to the Duties of their respective Offices, and he shall have Power to grant Reprieves and Pardons for Offences against the United States, except in Cases of Impeachment.

Note. The Cabinet is not mentioned by name in the Constitution. The only reference is that to “executive departments” in the paragraph above.

He shall have Power, by and with the Advice and Consent of the Senate, to make Treaties, provided two thirds of the Senators present concur; and he shall nominate, and by and with the Advice and Consent of the Senate, shall appoint Ambassadors, other public Ministers and Consuls, Judges of the Supreme Court, and all other Officers of the United States, whose Appointments are not herein otherwise provided for, and which shall be established by Law; but the Congress may by Law vest the Appointment of such inferior Officers, as they think proper, in the President alone, in the Courts of Law, or in the Heads of Departments.

Note. These provisions have been the occasion of much friction between the president and the Senate. That body has often refused to ratify treaties made under the direction of the president, and has also refused many times to confirm his appointments to office.

The President shall have Power to fill up all Vacancies that may happen during the Recess of the Senate, by granting Commissions which shall expire at the End of their next Session.

SECTION 3. He shall from time to time give to the Congress Information

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of the State of the Union, and recommend to their Consideration such Measures as he shall judge necessary and expedient; he may, on extraordinary Occasions, convene both Houses, or either of them, and in Case of Disagreement between them, with Respect to the Time of Adjournment, he may adjourn them to such Time as he shall think proper; he shall receive Ambassadors and other public Ministers; he shall take Care that the Laws be faithfully executed, and shall Commission all the Officers of the United States.

Note. Washington and Adams addressed Congress in person. Jefferson was a poor speaker and also thought that the practice was too much like the king's "Speech from the Throne." He sent his message in writing, and all other presidents down to Wilson followed his example. Wilson revived the earlier practice and was followed by Harding. Coolidge has followed both practices.

SECTION 4. The President, Vice-president and all civil Officers of the United States, shall be removed from Office on Impeachment for, and Conviction of, Treason, Bribery, or other high Crimes and Misdemeanors.

ARTICLE III

The Judicial Department

SECTION 1. The judicial Power of the United States, shall be vested in one supreme Court, and in such inferior Courts as the Congress may from time to time ordain and establish. The Judges, both of the supreme and inferior Courts, shall hold their Offices during good Behaviour, and shall, at stated Times, receive for their Services, a Compensation, which shall not be diminished during their continuance in Office.

Note. The first Congress in 1789 fixed the number of Supreme Court justices at six. This number has been changed from time to time. At present the court consists of a chief justice and eight associate justices. Below the supreme courts are circuit and district courts. Each state includes at least one district, and the larger states are divided into several districts with one or more judges for each. In all there are about 125 district judges. In every district there is a United States Attorney who represents the United States, and a United States Marshal whose duties are similar to those of a sheriff in the state court. The whole country is divided into nine circuits, with three to six circuit judges for each. These courts hear appeals from the district courts and in some cases their judgment is final. There is also a Federal Court of Claims, which examines claims against the United States, and a Court of Customs Appeals. Special federal courts are organized for the District of Columbia, Alaska, the Canal Zone, Hawaii and Porto Rico.

SECTION 2. The judicial Power shall extend to all Cases, in Law and Equity, arising under this Constitution, the Laws of the United States, and treaties made, or which shall be made, under their Authority;—to all Cases affecting Ambassadors, other public Ministers and Consuls;—to all Cases of admiralty and maritime Jurisdiction;—to Controversies to which the United States shall be a Party;—to Controversies between two or more States;—between a State and Citizens of another State;—between Citizens of different States,—between Citizens of the same State claiming Lands under Grants of different States, and between a State, or the Citizens thereof, and foreign States, Citizens, or Subjects.

Note. By the Eleventh Amendment a state may not be sued by a citizen of another state or by a foreigner.

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In all Cases affecting Ambassadors, other public Ministers and Consuls, and those in which a State shall be Party, the supreme Court shall have original Jurisdiction. In all the other Cases before mentioned the Supreme Court shall have appellate Jurisdiction, both as to Law and Fact, with such Exceptions, and under such regulations as the Congress shall make.

The Trial of all Crimes, except in Cases of Impeachment, shall be by Jury; and such Trial shall be held in the State where the said Crimes shall have been committed; but when not committed within any State, the Trial shall be at such Place or Places as the Congress may by Law have directed.

SECTION 3. Treason against the United States, shall consist only in levying War against them, or in adhering to their Enemies, giving them Aid and Comfort. No Person shall be convicted of Treason unless on the Testimony of two Witnesses to the same overt Act, or on Confession in open Court.

The Congress shall have Power to declare the Punishment of Treason, but no Attainder of Treason shall work Corruption of Blood or Forfeiture except during the Life of the Person attainted.

ARTICLE IV

The United States and the States

SECTION 1. Full Faith and Credit shall be given in each State to the public Acts, Records, and judicial Proceedings of every other State. And the Congress may by general Laws prescribe the Manner in which such Acts, Records and Proceedings shall be proved, and the effect thereof.

SECTION 2. The Citizens of each State shall be entitled to all Privileges and Immunities of Citizens in the several States.

A Person charged in any State with Treason, Felony, or other Crime, who shall flee from Justice, and be found in another State shall on Demand of the executive Authority of the State from which he fled, be delivered up, to be removed to the State having Jurisdiction of the Crime.

Note. This means that a criminal fleeing into another state must be given up upon the demand of the governor of the state where the crime was committed. This is called Extradition.

No Person held to Service or Labour in one State, under the Laws thereof, escaping into another, shall, in consequence of any Law, or Regulation therein, be discharged from such Service or Labour, but shall be delivered up on Claim of the Party to whom such Service or Labour may be due.

Note. Under this provision Congress passed the Fugitive Slave Laws.

SECTION 3. New States may be admitted by the Congress into this Union; but no new State shall be formed or erected within the Jurisdiction of any other State; nor any State be formed by the Junction of two or more States, or Parts of States, without the Consent of the Legislatures of the States concerned as well as of the Congress.

The Congress shall have Power to dispose of and make all needful Rules and Regulations respecting the Territory or other Property belonging to the United States; and nothing in this Constitution shall be so construed as to Prejudice any Claims of the United States, or of any particular State.

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SECTION 4. The United States shall guarantee to every State in this Union a Republican Form of Government, and shall protect each of them against Invasion; and on Application of the Legislature, or of the Executive (when the Legislature cannot be convened) against domestic Violence.

ARTICLE V

How the Constitution May Be Amended

The Congress, whenever two thirds of both Houses shall deem it necessary, shall propose Amendments to this Constitution, or, on the Application of the Legislature of two thirds of the several States, shall call a Convention for proposing Amendments, which, in either case, shall be valid to all Intents and Purposes as part of this Constitution, when ratified by the Legislature of three fourths of the several States, or by Conventions in three fourths thereof, as the one or the other Mode of Ratification may be proposed by the Congress; Provided that no Amendment which may be made prior to the Year one thousand eight hundred and eight shall in any Manner affect the first and fourth Clauses in the Ninth Section of the first Article; and that no State, without its Consent, shall be deprived of its equal Suffrage in the Senate.

ARTICLE VI

All Debts contracted and Engagements entered into, before the Adoption of this Constitution, shall be as valid against the United States under this Constitution, as under the Confederation.

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the land; and the Judges in every State shall be bound thereby, any thing in the Constitution or laws of any State to the Contrary notwithstanding.

The Senators and Representatives before mentioned, and the Members of the several State Legislatures, and all executive and judicial Officers, both of the United States and of the several States, shall be bound by Oath or Affirmation, to support this Constitution; but no religious Test shall ever be required as a Qualification to any Office or public Trust under the United States.

ARTICLE VII

The Ratification of the Conventions of nine States, shall be sufficient for the Establishment of this Constitution between the States so ratifying the Same.

Note. In this article the Convention plainly disregarded its instructions from Congress, which had voted that the changes should be approved by all the states. Since Rhode Island had sent no delegates to the Convention, it was expected that it would not ratify and that other states also might fail to approve. As you know, both Rhode Island and North Carolina failed to ratify, and the new government began without them.

Done in Convention by the Unanimous Consent of the States present the Seventeenth Day of September in the Year of our Lord one thousand seven hundred and Eighty seven and of the Independence of the United

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States of America the Twelfth. In Witness whereof We have hereunto subscribed our Names.

GO. WASHINGTON

Presidt and deputy from Virginia

New Hampshire

JOHN LANGDON
NICHOLAS GILMAN

Massachusetts

NATHANIEL GORHAM
RUFUS KING

Connecticut

WM: SAML. JOHNSON
ROGER SHERMAN

New York

ALEXANDER HAMILTON

New Jersey

WIL: LIVINGSTON
DAVID BREARLEY.
WM. PATTERSON.
JONA: DAYTON

Pennsylvania

B FRANKLIN
THOMAS MIFFLIN
ROBT MORRIS
GEO. CLYMER
THOS. FITZSIMONS
JARED INGERSOLL
JAMES WILSON
GOUV MORRIS

Delaware

GEO: READ
GUNNING BEDFORD JUN
JOHN DICKINSON
RICHARD BASSETT
JACO: BROOM

Maryland

JAMES MCHENRY
DAN OF ST THOS JENIFER
DANL. CARROLL

Virginia

JOHN BLAIR—
JAMES MADISON JR.

North Carolina

WM. BLOUNT
RICHD. DOBBS SPAIGHT
HU WILLIAMSON

South Carolina

J. RUTLEDGE
CHARLES COTESWORTH PINCKNEY
CHARLES PINCKNEY
PIERCE BUTLER

Georgia

WILLIAM FEW
ABR BALDWIN

Attest:

WILLIAM JACKSON, *Secretary*

ARTICLES IN ADDITION TO, AND AMENDMENT OF, THE CONSTITUTION OF THE UNITED STATES OF AMERICA, PROPOSED BY CONGRESS, AND RATIFIED BY THE LEGISLATURES OF THE SEVERAL STATES, PURSUANT TO THE FIFTH ARTICLE OF THE ORIGINAL CONSTITUTION.

I

Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof, or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances.

II

A well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed.

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III

No soldier shall, in time of peace be quartered in any house, without the consent of the Owner, nor in time of war, but in a manner to be prescribed by law.

IV

The right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures, shall not be violated, and no Warrants shall issue, but upon probable cause, supported by Oath or affirmation, and particularly describing the place to be searched, and the persons or things to be seized.

V

No person shall be held to answer for a capital, or otherwise infamous crime, unless on a presentment or indictment of a Grand Jury, except in cases arising in the land or naval forces, or in the Militia, when in actual service in time of War or public danger; nor shall any person be subject for the same offence to be twice put in jeopardy of life or limb; nor shall be compelled in any Criminal Case to be witness against himself, nor be deprived of life, liberty, or property, without due process of law; nor shall private property be taken for public use, without just compensation.

VI

In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury of the State and district wherein the crime shall have been committed, which district shall have been previously ascertained by law, and to be informed of the nature and cause of the accusation; to be confronted with the witnesses against him; to have compulsory process for obtaining Witnesses in his favor, and to have the Assistance of Counsel for his defence.

VII

In suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law.

VIII

Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.

IX

The enumeration in the Constitution, of certain rights, shall not be construed to deny or disparage others retained by the people.

X

The powers not delegated to the United States by the Constitution nor

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prohibited by it to the States, are reserved to the States respectively, or to the people.

Note. We have told you above that several of the states, when ratifying the Constitution, proposed amendments. The first Congress, meeting in New York in 1789, adopted twelve amendments and submitted them to the states. Ten of the twelve were ratified, and on December 15, 1791, were declared to be a part of the Constitution.

XI

The Judicial power of the United States shall not be construed to extend to any suit in law or equity, commenced or prosecuted against one of the United States by Citizens of another State, or by Citizens or Subjects of any Foreign State.

XII

The Electors shall meet in their respective states, and vote by ballot for President and Vice President, one of whom, at least, shall not be an inhabitant of the same state with themselves; they shall name in their ballots the person voted for as President, and in distinct ballots the person voted for as Vice-President, and they shall make distinct lists of all persons voted for as President, and of all persons voted for as Vice-President, and of the number of votes for each, which lists they shall sign and certify, and transmit sealed to the seat of the government of the United States, directed to the President of the Senate;—The President of the Senate shall, in the presence of the Senate and House of Representatives, open all the certificates and the votes shall then be counted;—The person having the greatest number of votes for President, shall be the President, if such number be a majority of the whole number of electors appointed; and if no person have such majority, then from the persons having the highest numbers not exceeding three on the list of those voted for as President, the House of Representatives shall choose immediately, by ballot, the President. But in choosing the President, the vote shall be taken by states, the representation from each state having one vote; a quorum for this purpose shall consist of a member or members from two-thirds of the states, and a majority of all the states shall be necessary to a choice. And if the House of Representatives shall not choose a President whenever the right of choice shall devolve upon them, before the fourth day of March next following, then the Vice-President shall act as President, as in the case of the death or other constitutional disability of the President. The person having the greatest number of votes as Vice-President, shall be Vice-President, if such number be a majority of the whole number of electors appointed, and if no person have a majority, then from the two highest numbers on the list, the Senate shall choose the Vice-President; a quorum for the purpose shall consist of two-thirds of the whole number of senators, and a majority of the whole number shall be necessary to a choice. But no person constitutionally ineligible to the office of President shall be eligible to that of Vice-President of the United States.

Note. In the election of 1800 Thomas Jefferson and Aaron Burr received the same number of electoral votes, and the tie was broken by the House of Representatives after much ill-feeling. To prevent such an occurrence in the future this amendment was sent to the states in 1803, and on September 25, 1804, became a part of the Constitution. It supersedes the third paragraph of Article II, section 1.

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XIII

SECTION 1. Neither slavery nor involuntary servitude, except as a punishment for crime whereof the party shall have been duly convicted, shall exist within the United States, or any place subject to their jurisdiction.

SECTION 2. Congress shall have power to enforce this article by appropriate legislation.

Note. The Emancipation Proclamation of January 1, 1863, gave freedom only to "slaves within any State, or designated part of a State, the people whereof shall then be in rebellion against the United States." Slaves in those parts of the Confederacy then held by the Union forces and slaves in the four slave-holding states which did not secede were not freed. All slaves were freed by this amendment, which was sent to the states February 1, 1865, and declared to have been ratified December 18, 1865.

XIV

SECTION 1. All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States: nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws.

SECTION 2. Representatives shall be apportioned among the several states according to their respective numbers, counting the whole number of persons in each State, excluding Indians not taxed. But when the right to vote at any election for the choice of electors for President and Vice President of the United States, Representatives in Congress, the Executive and Judicial officers of a State, or the members of the Legislature thereof, is denied to any of the male inhabitants of such State, being twenty-one years of age, and citizens of the United States, or in any way abridged, except for participation in rebellion, or other crime, the basis of representation therein shall be reduced in the proportion which the number of such male citizens shall bear to the whole number of male citizens twenty-one years of age in such State.

SECTION 3. No person shall be a Senator or Representative in Congress, or elector of President and Vice President, or hold any office, civil or military, under the United States, or under any State, who having previously taken an oath, as a member of Congress, or as an officer of the United States, or as a member of any State legislature or as an executive or judicial officer of any State, to support the Constitution of the United States, shall have engaged in insurrection or rebellion against the same, or given aid or comfort to the enemies thereof. But Congress may by a vote of two-thirds of each House remove such disability.

SECTION 4. The validity of the public debt of the United States, authorized by law, including debts incurred for payment of pensions and bounties for services in suppressing insurrection or rebellion, shall not be questioned. But neither the United States nor any State shall assume or pay any debt or obligation incurred in aid of insurrection or rebellion against the United States, or any claim for the loss or emancipation of any slave; but all such debts, obligations and claims shall be held illegal and void.

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SECTION 5. The Congress shall have power to enforce, by appropriate legislation, the provisions of this article.

Note. This amendment has several parts and was intended to accomplish several purposes. The emancipation of the slaves did not make them citizens. In fact, it gave the whites in the slave-holding states greater representation, for now they could count all the negroes in the population instead of three-fifths of them, and these negroes could not vote. Then, too, several of the Southern states had passed rather harsh laws which applied only to negroes. Again, President Johnson had been liberal in pardoning Southern leaders, and Congress wished to take this power from him. It also wished to make impossible the payment of the Confederate debt. Therefore, the first paragraph declares anyone born or naturalized in the United States to be a citizen, and forbids discrimination. The second paragraph punishes by loss of representation any state which prevents citizens from voting, while the third limited the pardoning power of the president. The fourth forbids the payment of the Confederate debt. This amendment was submitted to the states June 16, 1866, and on July 23, 1868, became a part of the Constitution.

XV

SECTION 1. The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude.

SECTION 2. The Congress shall have power to enforce this article by appropriate legislation.

Note. In spite of the Fourteenth Amendment the Southern states were slow to give the vote to the negro. The Fifteenth was intended to force them to grant this right. It was submitted February 27, 1869, and was ratified March 30, 1870.

XVI

The Congress shall have power to lay and collect taxes on incomes, from whatever source derived, without apportionment among the several States, and without regard to any census or enumeration.

Note. In Article I, section 9, third paragraph, Congress is forbidden to levy any direct taxes except in proportion to population. That is, states of the same population must pay the same amount of tax. The Income Tax is a tax levied on income rather than on population, and in 1894 the Supreme Court declared it to be a direct tax. Agitation to change the Constitution began, and July 12, 1909, the amendment was submitted to the states, and was declared to be ratified February 25, 1913.

XVII

The Senate of the United States shall be composed of two Senators from each State, elected by the people thereof, for six years; and each Senator shall have one vote. The electors in each State shall have the qualifications requisite for electors of the most numerous branch of the State Legislatures.

When vacancies happen in the representation of any State in the Senate, the executive authority of such State shall issue writs of election to fill such vacancies: *Provided*, That the Legislature of any State may empower the executive thereof to make temporary appointments until the people fill the vacancies by election as the Legislature may direct.

Note. Dissatisfaction with the election of senators by the legislatures of the states began to spring up after the Civil War, and this amendment was submitted to the states May 16, 1912, and was declared ratified May 31, 1913.

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XVIII

SECTION 1. After one year from the ratification of this article the manufacture, sale, or transportation of intoxicating liquors within, the importation thereof into, or the exportation thereof from the United States and all territory subject to the jurisdiction thereof for beverage purposes is hereby prohibited.

SECTION 2. The Congress and the several States shall have concurrent power to enforce this article by appropriate legislation.

SECTION 3. This article shall be inoperative unless it shall have been ratified as an amendment to the Constitution by the legislatures of the several States, as provided in the Constitution, within seven years from the date of the submission hereof to the States by the Congress.

Note. Opposition to the manufacture and sale of intoxicating liquors is not new in the United States; beginning with Maine in 1851, many states had passed prohibitory laws. This amendment was submitted to the states December 18, 1917, was declared ratified January 29, 1919, but did not go into effect until January 16, 1920.

XIX

The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of sex.

Congress shall have power to enforce this article by appropriate legislation.

Note. Some colonial women demanded the right to vote, and in Massachusetts many did vote. The first constitution of New Jersey in 1776 gave them the right to vote, but it was taken away in 1807. The demand for equal suffrage grew in strength, and Wyoming, when organized as a territory in 1869, gave women equal rights. Other territories and states followed, and in May 21, 1919, when the amendment was submitted to the states, women had equal voting rights in fourteen states and partial rights in many more. The amendment was declared ratified August 25, 1920.





SCHOOL-SUBJECT GUIDE

THE School-Subject Guide is an analysis of the contents of THE BOOK OF KNOWLEDGE according to the general classifications used in the schools. The ten main divisions into which the matter of the book is thus divided are given below. In each division the main articles, found to the extreme left, are given in black type in the order in which they occur in the volumes; under each the related subject matter is grouped as Supplementary Reading, Stories, etc., also in black type but a little to the right. The Wonder Questions on each subject follow, printed in light-face type. From this arrangement it is possible for anyone using the Guide to see at a glance the scope of the information on every subject contained in the volumes. This will not only save time but sometimes offer suggestions. The analysis of the Guide, which follows, gives the page numbers of the various divisions and subdivisions in each subject.

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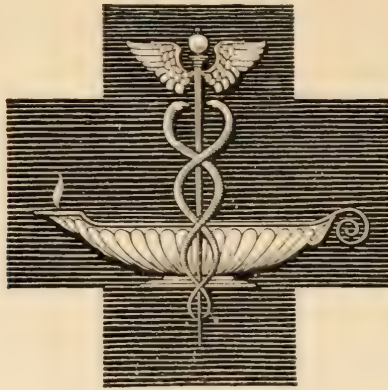
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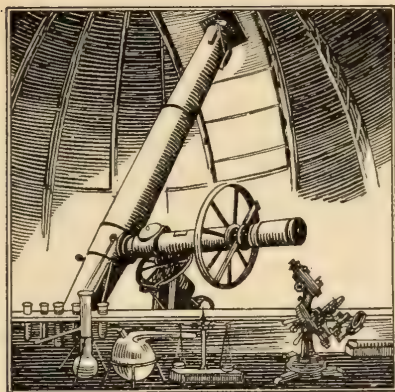
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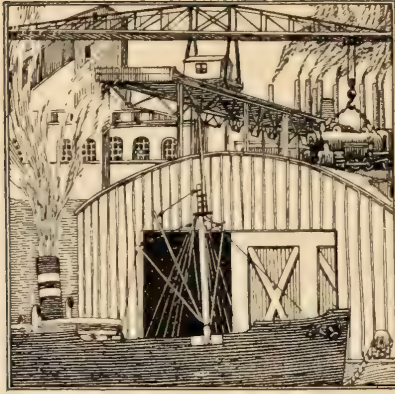
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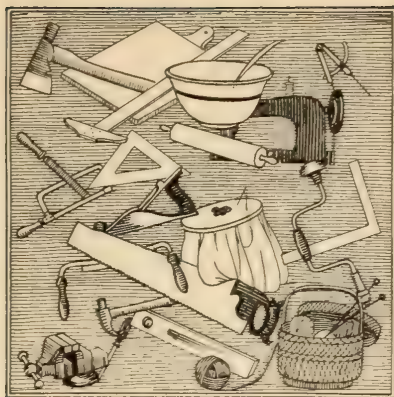
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 A pie sat on a pear tree, 8-3008
 A sunshiny shower won't last half an hour, 7-2530
 And, pray who are you? 8-2907
 Arthur O'Bower had broken his band, 7-2368
 As I walked by myself, 3-1010
 As I was going by Charing Cross, 10-3743
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 As I was going to sell my eggs, 13-4602
 As I went to Bonner, 17-6384
 As little Jennie Wren, 7-2639
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 As the days lengthen, 7-2530
 Baby and I were baked in a pie, 3-1143
 Baby moon, 'tis time for bed, 12-4274
 Baby's got a new pelisse, 12-4274
 Baby's got no legs at all, 12-4274
 Bat, bat, come under my hat, 4-1386
 Betty Pringle had a little pig, 6-2154
 Billy, Billy, come and play, 8-2907
 Birch and green holly, boys, 4-1386
 Black we are, but much admired, 7-2368
 Bless you, bless you, bonnie bee, 3-1143
 Blow, wind, blow! and go, mill, go! 18-6800
 Bounce Buckram, velvet's dear, 17-6110
 Bow-wow, says the dog, 15-5652
 Brian O'Lin had no breeches to wear, 3-1143
 Bring back your sheep, 18-6756
 Bye, Baby Bunting, 2-739
 Charley, Charley, stole the barley, 13-4601
 Clap, clap handies, 13-4602
 Cock Robin got up early, 8-3008
 Cold and raw the north wind doth blow, 10-3743
 Come, let's to bed, says Sleepy-head, 2-740
 "Croak," said the toad, "I'm hungry, I think," 13-4601
 Dame, get up and bake your pies, 17-6112
 Dance a Baby (with music), 7-2530
 Dance to your daddie, 3-1010
 Diddle-diddle-dumpty, 14-4957
 Dribble, dribble, trickle, trickle, 3-1143
 Every lady in this land, 18-6800
 Fiddle-de-dee, fiddle-de-dee, the fly has married the bumble-bee, 4-1274
 Five little pussy-cats, invited out to tea, 16-6028
 Flour of England, fruit of Spain, 7-2368
 For every evil under the sun, 4-1386
 Good-morrow, to you, Valentine! 5-1890
 Great A, little A, 16-5868
 He comes in the night, 17-6111
 He loves me, he don't! 13-4745
 He that would thrive, 16-6028
 Hector Protector was dressed all in green, 17-6384
 Here am I, little Jumping Joan, 2-740
 Here we go round a ginger ring, 6-2154
 Here we go up, up, up, 18-6800
 Here's a poor widow from Babylon, 6-2040
 Hey diddle, dinkety, poppety, pet, 7-2639
 Hey, my kitten, my kitten, 18-6800
 Hick-a-more, Hack-a-more, 7-2368
 Higgledey Piggledy, here we lie, 3-1010
 Higglepy, Piggledy, my black hen, 4-1274
 High diddle ding, 17-6384
 Hop, hop, hop! 7-2367
 Hush, baby, my dolly, I pray you don't cry, 7-2639
 Hush-a-bye, babby, lie still with thy daddy, 13-4745

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- Hush-a-bye, baby, Daddy is near,
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- I have seen you, little mouse, 5-1890
- I love the little flowers, 14-4957
- I love little pussy, 2-611
- I love sixpence, pretty little sixpence,
4-1274; (with music), 10-3743
- I love you well, my little brother,
13-4745
- I must not throw upon the floor,
6-2247
- I never saw a Purple Cow, 7-2642
- I saw a ship a-sailing, 18-6800
- I Saw Three Ships, 17-6110
- If all the world were apple pie,
18-6800
- If bees stay at home, rain will soon
come, 14-5242
- If I had as much money as I could
spend, 2-741
- If ifs and ans, 7-2530
- If no one ever marries me, 12-4275
- If the old woman who lived in a
shoe, 7-2644
- If you sneeze on Monday, you sneeze
for danger, 10-3743
- I'll sing you a song, 7-2530
- I'm going out a-hunting, 14-4957
- In a cottage in Fife lived a man and
his wife, 8-3008
- In London once I lost my way,
6-2248
- In marble walls as white as milk,
7-2368
- Jack Jingle went 'prentice, 16-5868
- Jack Sprat had a pig, 13-4602
- Jacky, come give me thy fiddle,
10-3743
- January brings the snow, 10-3646
- Jim and George were two great
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- Johnny head-in-air, 12-4480
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- Lavender blue and rosemary green,
13-4602
- Lend me thy mare to go a mile,
13-4745
- Little Bobby Snooks was fond of his
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- Little maid, pretty maid, whither
goest thou? 3-1143
- Little Polly Flinders, 2-491
- Little Tommy Tittlemouse, 10-3743
- Little White Feathers, 3-1144
- M.N.O. (with music), 16-5712
- March Meadows, 12-4274
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- Mary had a pretty bird, 7-2639
- Merry are the bells, 17-6113
- Millions of massive raindrops,
18-6800
- Miss Kitty was rude at the table one
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- Mr. East gave a feast, 6-2154
- Molly, my sister, and I fell out,
13-4601
- Monday's child is fair of face, 6-2247
- "Mother, may I go to swim?" 6-2154
- My father, he died, 9-3345
- My father he left me three acres of
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- My house is red—a little house,
7-2642
- My little old man and I fell out,
7-2530
- My Maid Mary, she minds her dairy,
17-6110
- Now all of you give heed unto,
18-6800
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France, 6-2248; 14-5132; 16-5869
- O, all you little Blackie-tops, 3-1148
- O dear, what can the matter be?
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- O fir-tree fine, O fir-tree fine, 7-2367
- Oh, my pretty cock! 14-4957
- Oh, ring the bells! 8-2907
- Oh, where are all the good little
girls? 3-1144
- Oh where, and oh where is my little
wee dog? 6-2154
- Oh, who is so merry, so merry, heigh
ho! 15-5652
- Old Abram Brown is dead and gone,
7-2530
- Old Mother Goose when she wanted
to wander, 16-5930-31
- Old Mother Twitchett had but one
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- On Christmas Eve I turned the spit,
16-5868
- On Saturday night shall be all my
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- One and One, 3-1144
- One, I love, two I love, 7-2644
- One, two, buckle my shoe, 17-6381
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 Peter, Peter, pumpkin eater, 13-4601
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 Polly, put the kettle on, 7-2643
 Poor Billy boy was music mad,
 3-1144
 Poor Dicky's dead! 14-4957
 Pretty flowers, tell me why, 18-6472
 Pretty maid, pretty maid, where have
 you been? 4-1274
 Punch and Judy fought for a pie,
 13-4601
 Pussy sits beside the fire, 13-4745
 Pussy-cat Mew jumped over a coal,
 13-4602
 Pussy-cat Mole jumped over a coal,
 16-5713
 Queen Anne, Queen Anne, she sits
 in the sun, 8-3008
 Remember, remember, the fifth of
 November, 6-2154
 Robert Barnes, fellow fine, 8-3008
 Robin-a-Robin bent his bow,
 13-4602
 Robin friend has gone to bed,
 12-4274
 Rowley Powley, pudding and pie,
 2-492
 Sea-gull, sea-gull, sit on the sand,
 3-1010
 "Shall I sing?" says the lark, 8-2907
 Shock-headed Peter, 12-4477
 Simon Brodie had a cow, 7-2639
 Sing, sing, what shall I sing? 2-739
 Sleepy, baby, sleep, 3-1143
 Some little mice sat in a barn to spin,
 5-1890
 Straight is the path of duty, 4-1386
 Taffy was a Welshman, Taffy was a
 thief, 3-1010
 The Bees (with music), 4-1519
 The Bogie Man (with music),
 15-5527
 The cock doth crow, 7-2530
 The cuckoo's a bonny bird, 3-1143
 The dove says, "Coo, coo, what shall
 I do?" 15-5652
 The fair maid, who, the First of May,
 4-1274
 The Farmer's Boy, 16-6025-27
 The Fir Tree, 7-2367
 The girl in the lane, that couldn't
 speak plain, 5-1890
 The Good Little Girls, 3-1144
 The gossips of the village, 13-4745
 The hart he loves the high wood,
 6-2154
 The Hobby Horse, 7-2367
 The Hunter and the Hare, 12-4478
 The king of clubs, he often drubs,
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 The Little Boat, 18-6756
 The Little Sister, 12-4274
 The man in the wilderness asked me,
 7-2639
 The Nonsense of Edward Lear,
 2-490-91; 3-1012
 The Owl and the Pussy Cat went to
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 The robin and the red breast, 8-2907
 The robin and the wren, 7-2639
 The Rock-a-bye Lady from Hush-a-
 bye Street, 18-6469
 The Story of a Blackamoor, 12-4479
 The Story of Fidgety Philip, 12-4477
 The Story of Flying Robert, 12-4480
 The sun one fine evening on high,
 8-2907
 The Three Old Ladies, 3-1144
 The Walrus and the Carpenter,
 6-2037-38
 The white dove sat on the castle wall,
 13-4745
 There's a dear little home in Good-
 children Street, 9-3340
 There's a neat little clock, 16-5712
 There was a butcher who cut his
 thumb, 3-1011
 There was a cobbler clouting shoon,
 3-1011
 There was a crow sat on a stone,
 3-1011
 There was a horse going to a mill,
 3-1011
 There was a jockey ran a race,
 3-1011
 There was a king met a king, 7-2368
 There was a little boy went into a
 field, 5-1890
 There was a little girl, who had a
 little curl, 2-492
 There was a little Rabbit sprig,
 4-1386
 There was a man and he had nought,
 6-2039
 There was a man, and he went mad,
 4-1385
 There was a monkey climb'd up a
 tree, 3-1011

- There was a navy went into Spain, 3-1011
 There was an old lady all dressed in silk, 3-1144
 There was an old man in a tree, 2-492
 There was an old woman, and what do you think? 16-5713
 There was an old woman called Nothing-at-all, 15-5652
 There was an old woman who ate an apple, 3-1011
 There was an owl lived in an oak, 15-5652
 There were three sisters in a hall, 13-4601
 They that wash on Friday, wash in need, 16-5712
 Thirty days hath September, 2-739
 Thirty white horses upon a red hill, 7-2368
 To market, to market, to buy a fat pig, 2-740
 Two frogs fell into a milk pail deep, 8-2907
 Two little girls are better than one, 3-1144
 Two little kittens, one stormy night, 13-4746
 Two sticks and an apple, 2-741
 Under a toadstool crept a wee elf, 12-4351
 Upon yon nearest rock-top, 6-2247
 Up hill and down dale, 3-1143
 Verses of Kate Greenaway, 19-6994-95
 Wash me and comb me, 3-1143
 Wassail, Wassail all over the Town, 13-4747
 We are all in the dumps, 17-6384
 Wee Willie Winkie, 17-6384
 What Every Wise Child Should Know, 8-2768
 What Everyone Knows, 2-738
 What is the news of the day? 17-6384
 What is the rhyme for porringer? 17-6110
 When I'm grown up, 14-5236
 When little Fred was called to bed, 7-2530
 When little Sammy Soapsuds went to take a ride, 2-741
 When Mummy's away, 14-5236
 When the snow is on the ground, 13-4745
 Where have you been all day? 18-6801
 Who killed Cock Robin? 10-3742
 Who stuffed that white owl? 7-2640
 Willy boy, Willy boy, where are you going? 13-4745
 You are going out to tea to-day, 16-5868
 You see, merry Phillis, that dear little maid, 14-4957
 You shall have an apple, 7-2530
 Young lambs to sell! 2-739

Mother Goose Rhymes

- A diller, a dollar, a ten o'clock scholar, 9-3342
 A frog he would a-woeing go, 18-6470-71
 A little old man and I fell out, 16-5712
 A swarm of bees in May, 4-1386
 As I was going up Pippin Hill, 16-5712
 As I was going to St. Ives, 16-5929
 As I went through a garden gap, 7-2368
 Baa, baa, black sheep (with music), 5-1782
 Barber, barber, shave a pig, 8-2907
 Bobby Shaft is gone to sea, 15-5652
 Bow, wow, wow, whose dog art thou? 13-4601
 Cock a doodle doo, 8-2772
 Cross patch, draw the latch, 4-1386
 Curly locks! curly locks! wilt thou be mine? (with music), 4-1386
 Dainty, diddlety, my mammy's maid, 15-5652
 Dance, little baby, dance up high, 14-4957
 Dickery, dickery dare, 13-4601
 Diddle, diddle, dumpling, 16-5868
 Ding dong bell, pussy's in the well, 11-4120
 Dr. Foster went to Glo'ster, 10-3743
 Elizabeth, Elspeth, Betsy and Bess, 9-3342
 Four and twenty tailors went to kill a snail, 2-740
 Girls and boys, come out to play (with music), 3-1010; (in color), 7-2641

Poetry

- Goosey, goosey gander, 9-3343
 Great A, little a, bouncing B, 7-2639
 Hey, diddle diddle, the cat and the fiddle (in color), 9-3341
 Hi! diddle diddle, 2-739
 Hickory, dickory, dock, 3-1147
 How many miles to Babylon? 3-1143
 Hush-a-by, baby, on the tree-top, 8-2770
 I had a little moppet, 7-2639
 I had a little pony, his name was Dapple Gray, 16-5713
 I have a little sister, they call her Peep, Peep, 7-2368
 I'll tell you a story about Jack a Nory, 16-5713
 Is John Smith within? 18-6800
 Jack and Jill, 18-6652
 Jack Sprat could eat no fat, 4-1385
 Little Betty Winkle, 5-1890
 Little Jack Horner sat in a corner, 2-740
 Little Miss Muffet, 4-1274
 Little Nanny Etticoat, 2-739
 Little Tom Tucker, 2-739
 Long legs, crooked thighs, 7-2368
 Mary, Mary, quite contrary, 16-5713
 Matthew, Mark, Luke and John, 2-740
 My dear, do you know, 7-2642
 My Lady Wind, My Lady Wind, 11-4035
 Oh, my kitten, a kitten, 15-5652
 Old King Cole, 11-4118-19
 Old Mother Hubbard, 16-5925
 Old woman, old woman, shall we go a-shearing? 3-1143
 One, two, three, four, five, 14-4957
 One misty, moisty morning, 17-6384
 Pat-a-cake, pat-a-cake, baker's man, 3-1010
 Pease-pudding hot, 4-1274
 Peter Piper picked a peck of pickled pepper, 2-739
 Poor old Robinson Crusoe! 6-2154
 Pussy-cat, pussy-cat, where have you been? 11-4117
 Ride a Cock Horse, 19-6996
 Robin, the Bobbin, the big greedy Ben, 10-3743
 Robin and Richard were two pretty men, 2-740
 Rub-a-dub-dub, three men in a tub, 14-4957
 See a pin and pick it up, 7-2642
 See-Saw, Margery Daw (with music), 2-739
 Simple Simon met a pieman, 18-6653
 Sing a song of sixpence, 16-5928; (with music), 2-610
 Solomon Grundy, 10-3645
 Tell tale tit, 4-1386
 The fox and his wife, 17-6382-83
 The House That Jack Built, 15-5651
 The King of France and four thousand men, 9-3342
 The King of France went up the hill, 7-2530
 The Lion and the unicorn, 8-2769
 The Little Cock-Sparrow, 10-3485
 The Little Man in Leather, 17-6384
 The man in the moon came tumbling down, 7-2530
 The Old Woman and Her Pig, 15-5525-26
 The Queen of Hearts, 9-3344
 There was a frog lived in a well, 18-6652
 There was a jolly miller, 17-6384
 There was a little boy and a little girl, 7-2530
 There was a man of Thessaly, 8-3008
 There was an old woman as I've heard tell, 3-1146
 There was an old woman lived under a hill, 2-740
 There was an old woman who had three sons, 18-6800
 There was an old woman who lived in a shoe, 3-1145
 There were once two cats of Kilkenny, 13-4602
 There were two blackbirds, sitting on a hill, 2-740
 This little pig went to market, 2-740
 Three wise men of Gotham, 16-5713
 Tom, Tom, the Piper's son, 13-3645
 Trip upon trendies, 3-849
 Two little dogs sat by the fire, 7-2639
 What are little boys made of? 16-5713; (with music), 6-2248
 When good King Arthur ruled this land, 8-2771
 When I was a bachelor, I lived by myself, 5-1889
 "Where are you going to, my pretty maid?" (with music), 2-741
 Who comes here? 2-739

Famous Books

Ramona, 1-133

In 1883 Mrs. Helen Hunt Jackson was appointed a special commissioner to investigate the conditions and needs of the Mission Indians in California. The following year she wrote *Ramona*. Probably this is the best story yet written of California in the days immediately following the taking of the coast state from Mexico. Mrs. Jackson wrote her book to show how unjust had been the treatment of the conquered peoples, but its greatest interest lies in its pen pictures of the great ranch and the Indian settlements.

The Last of the Mohicans, 1-267

There is no more picturesque figure in modern romance than the American Indian. Fenimore Cooper, whose life story is told under American Literature, became famous for his stories of adventure among the Redskins. This is one of his best-known tales, told over again as a short story. Cooper wrote this romance of the American wilderness in 1826, at a time when the Indians were still fairly numerous and often took the warpath against the white settlers. They had their encampments even in the Great North Woods of New York.

Supplementary Reading

Life of Fenimore Cooper, 13-4626

Robinson Crusoe, 2-665

In the early part of the eighteenth century an Englishman wrote a story of marvelous adventure which for a long time was regarded as a true narrative. The writer was Daniel Defoe, and his story *Robinson Crusoe*. It is a great work of the imagination, although the real adventures of a shipwrecked sailor named Alexander Selkirk may have suggested the idea of *Robinson Crusoe* to Defoe.

Supplementary Reading

Life of Daniel Defoe, 4-1480

Gulliver's Travels, 3-947

A few years after *Robinson Crusoe* was published, one of the greatest satirical stories in our language appeared. This was *Travels into Several Remote Nations of the World*, the author of which called himself "Lemuel Gulliver." The first part appeared in 1726. It was written just like a book of travel, but its purpose was to satirize the England of that time. The story is extraordinary, and people liked it because it was so unusual. The author was the Reverend Jonathan Swift, Dean of St. Patrick's, Dublin.

Supplementary Reading

Life of Swift, 6-1619

The Adventures of Baron Munchausen, 4-1421

This book appeared in England in 1785. It is a satire on the extravagant tales of travelers. Rudolph Raspe, a German scholar who was clever but not very honest, had taken refuge in England to escape punishment for some wrongdoing in Germany. To make money he wrote a little book which became popular at once because the travels of his hero, Baron Munchausen, were so ridiculous. As years went on, other unknown authors added to the book, till it became a considerable volume, which has been translated into many languages.

The Adventures of Don Quixote, 5-1629

In the early years of the seventeenth century stories of the impossible deeds performed by wandering knights were almost the only books read in Spain, where lived the great author Cervantes. He decided to ridicule these absurd stories and so he wrote *The Adventures of Don Quixote*. The hero of the book is a kindly old gentleman whose head had been turned by reading trashy stories of knights and ladies fair. For its humor, its wisdom, its understanding of humanity, as well as for its pictures of Spanish life, this book is one of the greatest in literature. It is not for a century, but for all time.

Supplementary Reading

Life of Cervantes, 19-7127

The Gold-Bug, 5-1899

The *Gold-Bug* is a delightful treasure story wherein the secret lies hidden in a cipher. Its author, Edgar Allan Poe, was born in Boston in 1809 and died in Baltimore in 1849. His life was tragic, yet in spite of the shadows—or because of them—he produced some poems that will live forever. He became a master of the short mystery story. Some of his tales are gruesome and full of horror, but they are perfectly told.

Supplementary Reading

Life of Poe, 13-4725

The Story of the Iliad, the Odyssey and the Æneid, 6-1983

The oldest real books are the *Iliad* and the *Odyssey*, supposed to have been composed by the Greek poet Homer between 800 and 1,000 years before the Christian Era. Perhaps he brought together the work of other poets as well as his own. The greatest Roman poet, Virgil, was born just seventy years before Christ, and his most famous work is the *Æneid*.

Supplementary Reading

Life of Homer, 16-5748

Life of Virgil, 16-5911

The Man without a Country, 7-2401

The life of Philip Nolan is told so simply and so well that many have believed that this is a true story. While no such punishment was ever given to a United States officer, the Reverend Edward Everett Hale, the author, has very realistically described the feelings of a man cut off from home and country by his own act. The story was written in the dark days of 1863, when there were many disloyal people in the North, and it was written as a warning.

David Copperfield, 8-2773

The story of David Copperfield was Charles Dickens' own favorite—it is, besides, largely the story of his own life. The illustrations given are from copies of the original pictures drawn for the story more than fifty years ago.

Supplementary Reading

Life of Dickens, 8-2731

Wacousta, 9-3141

The lives of the early settlers in North America were in constant danger from Indians. This story by Major John Richardson gives us some idea of the bravery of the pioneers who won the land from its savage owners. Major Richardson, who was born in 1796, had heard from older people tales of actual experiences in Indian warfare. He had, moreover, been brought up in the fort at Amherstburg, where Indians were always a part of the scene.

Two Years before the Mast, 9-3357

This book is one of the best descriptions of life on a sailing ship in the first half of the last century. The author, Richard Henry Dana, was a member of a distinguished Boston family who made the voyage around the Horn for his health during his student days at Harvard. After Mr. Dana's voyage he returned to his studies, graduated from Harvard, and became a famous lawyer.

The Clockmaker, Sam Slick, 10-3527

The Clockmaker, or The Sayings and Doings of Sam Slick of Slickville, first appeared in the form of articles in a paper, The Nova Scotian, beginning in 1835. The author was Thomas Chandler Haliburton, who was born in 1796 at Windsor, Nova Scotia. Although the chief character of the book, Sam Slick, is a Yankee, the scene is laid in Nova Scotia, and Nova Scotians and Yankees alike are made the butt of Haliburton's shrewd satire.

Ben-Hur, 10-3745

Ben-Hur is a work of fiction dealing with the time of Jesus: it is the romance of a young Jew who became a convert through the teachings of Jesus. The author, General Lew Wallace, was already well known as a soldier and statesman as well as a story-writer when in 1880, at the age of fifty-three, he published Ben-Hur.

Les Misérables, 11-3861

Les Misérables is Victor Hugo's masterpiece. It is the story of a soul purified by heroism and glorified through suffering. Valjean, the ex-convict hero, is one of the finest characters in fiction. Hugo was born at Besançon in 1802 and died in 1885.

Supplementary Reading

Hugo's Position in French Literature, 18-6717

The Waverley Novels, 11-4069

This series contains thirty-two stories, would fill about ten thousand closely printed pages, and covers a period of history of more than seven hundred years. It is the work of Sir Walter Scott during the years 1814 to 1831. Besides a general view of this library, which in a complete edition usually runs to about twenty-five volumes, we give here an epitome of each and finally an outline of the story of Waverley and an excerpt from it.

Supplementary Reading

Scott and His Stories, 7-2625

Round the World in Eighty Days, 12-4235

Jules Verne, the famous French writer of imaginative tales, was born at Nantes, February 8, 1828, and died at Amiens, March 24, 1905. He wrote a number of stories of marvelous adventures. The hero of this book is an Englishman, and the author makes many comic errors in his depiction of English life. The speed of railway and steamship travel has greatly increased since the story was written in 1873, and we could now make the journey in half the time.

Scottish Chiefs, 12-4319

In the olden days there was constant warfare between Scotland and England, and in *Scottish Chiefs*, by Jane Porter (1810), we have a very vivid picture of the struggle. The romantic Sir William Wallace is the hero, and immediately the book was published it was accepted by all Scots as a tribute to the cherished memory of Wallace.

Treasure Island, 13-4645

Treasure Island is a boy's tale of adventure, written for boys, with a boy for a hero. It grew out of a map which Robert Louis Stevenson drew and colored one day to entertain his little stepson, Lloyd Osbourne. On the map he marked names at random and then built a story around them. The tale was first published in 1881 as *The Sea Cook*, and appeared in *Young Folks*, a boy's magazine. In 1883 it came out in book form.

Supplementary Reading

Stevenson as an Author, 8-2867

The Canterbury Tales, 13-4767

The most famous work of Geoffrey Chaucer, the first great English poet, is *The Canterbury Tales*. Its plan is simple. A company of pilgrims set out from the Tabard Inn at Southwark in April, 1387, to visit the shrine of St. Thomas à Becket at Canterbury. The landlord of the inn proposed that each pilgrim, to pass the time, tell a story on the way to Canterbury and on the way back. As there were thirty-three people in the company, including Chaucer himself, that would mean sixty-six tales, but the poet wrote only twenty-four.

Supplementary Reading

Life of Chaucer, 1-300

Westward Ho! 14-5027

Charles Kingsley wrote *Westward Ho!* mainly to commemorate those early days of England's naval and commercial glory when, under the wise patronage of Queen Elizabeth, England's enterprise was spreading and taking root in distant seas. Spain was the most powerful of European nations at that period, and her ambition was to be mistress of the world, especially of England. But England's seamen, notably the men of Devon, put an end to such designs when they routed the Great Armada in 1588.

Tom Brown's Schooldays, 14-5149

This celebrated story of English school life was written in 1856 by Thomas Hughes, an eminent lawyer and judge, a friend and helper of the poor. Judge Hughes was born October 23, 1823, and died March 22, 1896. He was educated first at Rugby, under the famous Dr. Arnold, and afterward at Oxford. This story is largely an account of his and his brother's experiences, and we are not far wrong in reading Thomas Hughes where it says Tom Brown.

Moby Dick, or The Whale, 15-5401

Herman Melville, the author of *Moby Dick*, was born in New York City in 1818. At eighteen years of age he went to sea as a cabin-boy on a vessel trading to Liverpool. Four years later he went for a whaling cruise in the Pacific. After enduring a year and a half of cruelty from his captain, Melville deserted at the Marquesas Islands. He was captured by cannibals, but was rescued by an Australian ship. So Melville knew well the life which he describes in *Moby Dick*.

The Pilgrim's Progress, 15-5543

No book except the Bible itself has had greater influence for good in the minds of men than *The Pilgrim's Progress*. Written in simple, straightforward English by a poor tinker, John Bunyan, who became a powerful preacher of God's word, this story is likely to be read as long as literature endures. It is in allegorical form,

illustrating the trials that beset a Christian on his way through life.

Supplementary Reading

Life of Bunyan, 4-1477

Roughing It in the Bush, 16-5901

Susanna Moodie, the author of this account of pioneer days in the Canadian bush, came out from Scotland with her husband in 1832. Both she and her husband were gifted writers, and her sister, Agnes Strickland, won fame as the author of the *Lives of the Queens of England*. Her description of the sufferings and privations endured by educated persons who came to settle in British North America brings realistically before us the difference that has taken place in the lot of immigrants since the early days of the nineteenth century.

The Old Man Named Scrooge, 17-6115

A Christmas Carol in Prose is only a short book written for the Christmas season, but it is one of the most charming stories Dickens ever gave us. It is the best Christmas story. "It seems to be a national benefit, and to every man and woman who reads it a personal kindness," said Thackeray, the novelist.

The Count of Monte Cristo, 18-6573

Monte Cristo was originally published in 1844. It is the greatest of the novels of Alexandre Dumas, the celebrated romancer. Purely an effort of the imagination, it has no historical foundation, but surely no more fascinating story was ever conceived. In its original form it is a work of enormous length.

Masterman Ready, 18-6757

Masterman Ready was written by Captain Marryat to entertain and instruct his own children, who had been so delighted with *The Swiss Family Robinson* that they wanted their father to continue it. Captain Marryat was born in London, July 10, 1792, and died in Norfolk, August 9, 1848. He was a naval officer who won fame as a writer of stories of the sea which are true to life.



Stories

Fairy Stories

Aladdin and the Wonderful Lamp, 12-4193

Ali Baba and the Forty Thieves, 2-537

Alice in Wonderland, 3-1089

The Babes in the Wood, 7-2341

- Beauty and the Beast, 18-6607
The Boy at the Giant's Castle, 19-7008
Catching a Thief, 17-6099
Childe Roland to the Dark Tower Came, 9-3245
Cinderella and the Glass Slipper, 19-7222
The Cobblers and the Cuckoo, 9-3347
The Cunning Farmer and the Dwarf, 13-4558
The Discontented Fir Tree, 15-5323
The Discontented Pendulum, 12-4198
East of the Sun and West of the Moon, 5-1845
The Emperor's New Clothes, 3-851
The Emperor's Nightingale, 7-2455
The Fairies and the Hunchbacks, 10-3442
The Fairies of St. David, 2-404
A Fairy Funeral, 11-3836
The Fairy Maid of Van Lake, 15-5441; in French, 6-2108
The First Apple Dumpling, 17-6095
The Fruit of Happiness, 11-3832
The Giant Who Had No Heart in His Body, 4-1525
The Giant with Three Golden Hairs, 5-1841
The Giant's Plaything, 5-1575
The Gnomes Who Found the World Is Round, 3-854
The Goblins in the Gold-mine, 4-1523
Goldilocks and the Golden Crown, 14-4941
Hansel and Grethel, 6-1965
Hop-o'-my-Thumb, 17-6317
In the Days When Men Were Good, 7-2600
Jack and the Bean-stalk, 10-3597
Jack the Giant-killer, 18-6793
The King of the Golden River, 6-2221
The Land of Youth, 7-2601
Little Claus and Big Claus, 2-755
The Little Spinner at the Window, 10-3711
Little Tiny Thumbeline, 18-6787
The Magic Boy Fiddler of Sicily, 11-3983
The Magic Tinder-box, 6-2105
Miss Dollie and Captain Blue, 14-5255
Noureddin and the Wonderful Persian, 13-4755
Nutcracker and the King of Mice, 10-3600
Olaf of Orchard Farm, 12-4301
The Old Couple at the Mill, 11-3829
A Pair of Magic Slippers, 2-402
The Prince Who Was Poor, 15-5529
The Prince's Five Servants, 13-4749
Princess Florina, 7-2458
The Princess Who Became a Goose Girl, 11-3830

Stories

- The Princess's Golden Ball, 14-5193
Puss in Boots, 10-3441
Rapunzel's Golden Ladder, 9-3352
The Remarkable Rocket, 14-5260
Rip Van Winkle, 12-4481
Rum-Pel-Stilt-Skin, 11-3981
The Search for the Real Princess, 2-756
The Selfish Giant, 4-1187
The Shepherd-maid and the Sweep, 11-3903
The Silent Princess, 13-4557
Sindbad the Sailor, 19-7215
Snowdrop and the Dwarfs, 7-2597
A Son of a Gun, 19-6998
The Story of Fairyfoot, 11-4137
The Story of Faithful John, 11-3901
The Story of Little Red Riding-Hood, 18-6474
The Story of the Sleeping Beauty, 19-7006
A Tale of Christmas Eve, 17-6098
The Tale of Jenny Martin, 10-3713
The Three Bears, 16-5825
The Three Little Pigs, 1-145
Three Nights in the Enchanted Castle, 11-3984
Tom Thumb, 18-6611
The True Story of Father Christmas, 17-6102
Twelve Dancing Princesses, 4-1521
The Ugly Duckling, 17-6096
When Betty Lost Her Way, 10-3716
The Wind Sings down the Chimney, 5-1576
The Witch's Ring, 2-541
The Wizard's Castle in the Air, 10-3444
The Yellow Dwarf, 15-5443

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British

- Earl's Daughter and Beggarman, 14-5196
Gelert, the Faithful Dog, 5-1693
Geraint and Enid, 17-6320
Gog and Magog, 14-5194
How Gotham Got a Bad Name, 6-2108; in French, 12-4489
King Arthur and His Knights, 19-6941
Legends of Places in England, 17-6324
The Lily Maid of Astolat, 16-5823
Mona and the Forsaken Merman, 1-59
Robin Hood and His Merry Men, 2-397
St. George and the Dragon, 1-54
Sir Tristram of Lyonesse, 7-2460

Chinese

The Story of the Willow-Pattern Plate, 4-1532

French

The Adventures of Reynard the Fox, 8-2965

Love Laughs at Locksmiths, 7-2352

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Howleglass, the Merry Jester, 8-2962

Legends and Tales of the Rhine, 18-6503

Lohengrin, or the Swan-Knight, 8-2957

Undine, the Story of a Water Nymph, 11-4141

Greek

Achilles and the Queen of the Amazons, 1-53

The Dog That Remembered Odysseus, 1-146

The Face No Man Could Look On, 15-5442

Icarus and His Waxen Wings, 12-4197

Pandora, 14-5259

Penelope's Marvelous Tapestry, 1-53

The Quest of the Golden Fleece, 3-1100

The Riddle of the Sphinx, 18-6610

Stories of Greece and Rome, 9-3083

The Story of Cupid and Psyche, 19-7005

The Story of Midas, 16-6030

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Indian Legends, 17-6199

Japanese

The Mysterious Portrait, 9-3080

Jewish

The Legend of the Wandering Jew, 19-7224

Stories from the Talmud, 9-3082; 18-6480

Kafir

Stories Told to Kafir Children, 5-1582

Norse

Iduna and the Golden Apples, 15-5328

The Story of the Days, 12-4199

A Tale of Many Lands, 14-4942

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Androcles and the Lion, 12-4488

The Geese Who Kept Guard of Rome, 11-3982

Miscellaneous

Legends of Places and Things, 15-5537

Why the Elm Tree Grows So Tall, 8-2820



Fables and Proverbs

Egyptian

The Farmer and His Dog, 8-2964

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Æsop, 1-58; 2-539; 3-1102; 4-1186; 4-1342; 6-1969; 11-3986;
11-4144; 13-4752; 14-4946; 15-5538

Indian

The Hundred Thousand Monkeys, 16-6032

The Kafir and the Lion, 16-6033

Turkish

How the Thief Was Found Out, 18-6479

The Lawyer and the Oyster, 18-6484

Miscellaneous

The Dog and the Wolf, 17-6323

The Fox without a Tail, 12-4487

The Hungry Fox and the Kitten, 7-2352

The Husband Who Was to Mind the House, 3-1099

The Lord of the Lions, 2-404

The Peasant and the Three Robbers, 10-3719

The Proud King of Kamera, 7-2352

Proverb Stories, 16-6036

Folk Stories

Little Goody Two-shoes, 9-3077

Stories Told in India 3,000 Years Ago, 10-3718

Stories Told in the Middle Ages, 8-2961

The Wisest Maid in Wessex, 15-5441; in French, 11-4143

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Black Diamond, 15-5326

The Dog That Knew His Master, 11-4139

The Destruction of a Ship by a Whale, 4-1189

Jack Miner, the Man Who Loves Birds, 8-2813

Legends of the Stars, 6-1970

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The Story of Day, 16-6034

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Dick Whittington and His Cat, 2-758

The Man of Great Importance, 5-1691

The Merciful Knight, 9-3244
Sir Walter Scott and Some of His Pets, 14-5265
Stories Told in the Old English Schools, 8-2963

Hero Stories

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A Band of Noble Men, 4-1256
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The Beloved Physician (Dr. Trudeau), 1-229
The Boy on the Burning Deck (Casabianca), 19-6881
The Boy Who Saved the Boat, 1-128
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The Boy Who Would Not Fight against Freedom, 13-4581
The Brave Apprentice, 1-123
The Brave Constable of France (Du Guesclin), 10-3468
The Brave Cardinal of Milan (Borromeo), 10-3466
Brave Countess Joan of Brittany, 12-4226
The Brave Deed of a Young American Doctor (Samuel Howe), 13-4580
The Brave French Maid of Noyon, 11-3806
A Brave Girl, 14-5121
Brave Grizel Hume, 2-441
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Cher Ami, D. S. C., 7-2319
The Daughter of Sir Thomas More, 14-5124
The Devotion of a King's Daughter (Duchess of Ferrara), 19-6881
The Devotion of a Roman, 11-3806
The Doctor of Burton Port, 6-2008
Dogs Who Have Done Their Bit, 16-5735
Edith Cavell, 17-6396
The Elsie to the Rescue, 14-5120
The Friend of the Slaves (St. Vincent de Paul), 5-1732
The Friendship of Damon and Pythias, 9-3064
A Frugal Hero of Ancient Rome (Curius Dentatus), 3-889
The Girl Who Held the Fort (Madeleine de Verchères), 11-4089
The Girl Who Sold Her Hair, 4-1257
The Girl Who Walked to London (Helen Walker), 12-4224
A Girl's Desperate Ride (Grizel Cochrane), 10-3465
Greater Love Hath No Man Than This (Father Damien), 7-2320
Heroes of Aviation, 17-6291
A Heroine of the Southern Seas (Kapiolani), 2-446
The Heroism of Grace Darling, 3-1035
How Alcestis Gave Her Life, 8-2703
How Lady Godiva Helped Her People, 17-6295
How Regulus Went Back to Die, 1-125
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- John Maynard, Pilot, 17-6137
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Kate Barlass of the Broken Arm, 13-4579
The Last Fight at the Colosseum, 9-3064
A Lithuanian Girl's Quick Wit, 11-3811
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A Little Girl Trusted with State Secrets, 1-126
The Little Lombard Sentinel, 18-6482
The Man Who Carried Death (Peel), 17-6139
The Man Who Knew No Fear (Bayard), 13-4577
The Man Who Loved Children (Pestalozzi), 1-127
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The Man Who Saved St. Helier (Touzel), 11-4092
The Man Who Thought of His Comrades, 17-6294
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The Men of the Birkenhead, 3-888
The Mother of the Gracchi, 11-3811
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A Prince Who Gave Up His Freedom (Fernando), 4-1257
The Queen Who Gave Up Her Boy (Jeanne of Navarre), 13-4581
A Race for the Lifeboat, 5-1731
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The Sacrifice of a King's Sister (Antigone), 6-2008
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The Servant Who Tried to Save His Mistress, 3-1036
The Soul of Countess Cathleen, 15-5379
The Story of Brave William Tell, 19-7217
The Swiss Guards Who Did Their Duty, 3-888
The Tale of a Slave (Geronimo), 19-6880
The Tallow Dip and the Black Salt, 8-2708
Three Cups of Cold Water (Sir Philip Sidney), 6-2007
The Undying Love of a Sister, 9-3068
The Wonderful Story of the Venerable Bede, 1-126
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When the White Ship Went Down (Prince William), 12-4223
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The Little Princes in the Tower, 1-147
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The Story of Beowulf, 1-56
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The Game of Billiards, 4-1528
How the Bad News Reached the King, 13-4751
The King Who Could Not Sleep, 5-1577
The King's Guest, 16-6029
The King's Three Questions, 16-5830
A Letter from a Man We All Know, 16-5689
A Little Game of Thinking, 8-2960

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- A Little Letter, 16-6035
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The Miller and His Pets, 19-6997
The Rosy Apple, 5-1580
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The School Examination, 13-4753
Stories from the Chinese, 5-1579
The Three Maid-servants, 7-2602



FINE ARTS



Painting

The Rich Treasure That Is Ours, 1-61

Art, the earliest as well as the highest and the most elusive form of self-expression, is the heritage of us all.

The Cave-men and Their Pictures, 1-189

The oldest known art of the human race, drawings on bones and horns and the walls of caves in Europe; the art of the reindeer-hunters of the Stone Age.

Supplementary Reading

The Pliocene and the Pleistocene, 6-1925

The Artists of the Old Empires, 1-289

Following the Bronze Age—the wall-decorations of Egypt, Assyria, Babylonia and Persia.

Supplementary Reading

Babylonia and Assyria, 2-647

Egypt's Fascinating Story, 3-807

Persia and Its Story, 3-909

The Literatures of the East, 15-5459

Ægean and Classical Painting, 2-447

Ancient treasures brought to light in Crete and Mycenæ and Tiryns, disclosing a great civilization. Greek painting on vases and walls.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Literature of Greece, 16-5747

The Great Greeks, 2-701

The Grandeur That Was Rome, 4-1191

The Literature of Rome, 16-5907

A Great Light Shines, 2-575

Early Christian art, influenced by Syria, Persia and Greece. Roman and Byzantine branches. Decorations in the catacombs, in churches and in books.

Supplementary Reading

The Lovely Books of Long Ago, 2-477

The Wonder Men of Florence, 2-691

The Italian primitives, their place and value.

Sieneese artists: Duccio, Memmi, the Lorenzetti, Bartolo.

Florentine artists: Cimabue, Giotto, Orcagna, Taddeo Gaddi, other followers of Giotto, Fra Angelico, Benozzo Gozzoli, Massaccio, Botticelli, Piero di Cosimo, Ghirlandaio, Lorenzo di Credi, Piero dei Franceschi the Umbrian, and Luca Signorelli the Tuscan.

Supplementary Reading

The Builders of Florence, 5-1735

The Literature of Italy, 17-6149

The Little Poor Man of Assisi, 6-1991

The Rise and Fall of Turkey, 13-4797

Leonardo and Michelangelo, 3-823

Renaissance in Tuscany; growth of learning; return of Greek culture to Italy after the conquest of Byzantium by the Turks—three influences on fifteenth- and sixteenth-century art.

Leonardo da Vinci, an artistic genius. Some of his paintings: The Last Supper, Mona Lisa, The Madonna of the Rocks; portraits, and others.

Michelangelo—the master—sculptor, painter, architect, poet. Some of his paintings: The ceiling of the Sistine Chapel, The Last Judgment for the wall of the Chapel, The Holy Family, and others.

Supplementary Reading

The Builders of Florence, 5-1735

Raphael and His Time, 3-957

Fra Bartolommeo, master of composition.

Andrea del Sarto, the "faultless painter."

Bronzino, first Florentine to paint independent portraits of children.

Umbrian artists: Gentile da Fabriano, Perugino and Pinturicchio.

Raphael Sanzio, the "divine painter," supreme in the composition of space. The three periods of his work—Umbrian, Florentine and Roman. Some of his paintings: The Marriage of the Virgin, the Madonna groups and the decorations of the Stanze and the Loggie in the Vatican.

Supplementary Reading

The Builders of Florence, 5-1735

Venice Rises and Italy Wanes, 3-1103

Squarcione, founder of the Paduan school.

Mantegna and the classic ideal.

The **Bellinis**—Jacopo, Giovanni and Gentile—the first great masters in Venice.

The **Vivarini** family, **Lorenzo Lotto**, **Antonello da Messina**, **Crivelli**, **Carpaccio**, **Cima da Conegliano**, **Palma Vecchio**, **Sebastiano del Piombo**.

Giorgione, one of the first to give landscape equal importance with figures.

Titian, the great painter of a world of beautiful things.

Tintoretto, industrious painter of imposing large pictures.

Paolo Veronese, whose banqueting scenes and other works have strongly decorative feeling.

Later Venetians: **Tiepolo**, **Guardi** and **Canaletto**.

Borgognone and **Bernardino Luini** of Milan.

Moretto and **Moroni** of Brescia.

Correggio of Parma, able in handling light and shade and in painting figures in motion.

Painters of Bologna: The **Caracci** family and their followers, **Albano**, **Domenichino**, **Guido Reni**, **Guercino**.

Caravaggio, a leader in realism.

Salvator Rosa of Naples.

Supplementary Reading

The Makers of Venice, 4-1455

The Artists of Flanders, 4-1221

The illumination of manuscripts.

Flemish genius, content with things as they are.

The **Van Eycks**, **Hubert** and **Jan**, of Bruges; **Jan**, the greatest portrait-painter of Europe. Their altar-piece for a church in Ghent, The Adoration of the Lamb.

Roger van der Weyden, a man of visionary and mystic thoughts.

Thierry Bouts of Haarlem, who painted the harder side of life.

Memling's religious pictures and fine portraits.

Hugo van der Goes' paintings of sweetly grave Flemish women.

Quentin Matsys, **Gerard David** and **Mabuse** (**Jan Gossaert**).

Hieronymus Bosch's amusing groups.

The **Brueghels**—painters of genre pictures: two **Pieters** and two **Jans**. The beauty of Flemish landscape first realized in their work.

Early French art allied to that of Flanders.

Franco-Flemish School at Paris.

The Avignon School.

Nicholas Froment.

Jean Fouquet, father of French art.

The **Clouets**, who combined Flemish and French qualities.

Supplementary Reading

Belgium and Her People, 15-5495
The Beginnings of France, 10-3429
The Literature of France, 18-6559

The German Painters, 4-1343

Early schools of painting at Prague, Cologne, etc.
Old "Masters" whose names are lost, although their works remain.
"Master Stephan" and his triple panel, The Adoration of the Magi,
in Cologne Cathedral.

Sturdy realistic studies of men and women.

Martin Schongauer, of the Swabian school, and his pupil Burgkmair.
Lucas Cranach, founder of the Saxon school.

Mathias Grünewald of Alsace, who used color as a painter should.
Albrecht Dürer, of unrivaled greatness. Contact with Venetian and
Flemish art. His art lifted to great heights by thought and imag-
ination. Some of his paintings: famous portraits, The Adora-
tion of the Magi, The Four Evangelists and others. The greatest
expression of his genius, in engraving and woodcutting—a su-
preme master of line.

Hans Holbein the younger. Pupil of his father, Hans the elder.
Painter to the English court. Some of his paintings: the Meyer
Madonna; portraits of Sir Thomas More, the Duchess of Milan,
George Gisze, and others. Famous as engraver as well.

Supplementary Reading

The Beginnings of Germany, 11-3959
The Literature of Germany, 17-6265; 17-6409

The Spaniards and Their Pictures, 4-1495

Real activity in art in Spain delayed till the sixteenth century.

Morales, a painter of sad-faced madonnas and saints.

El Greco, a Cretan. Distorted religious subjects treated with exag-
geration of realism. His fame a growing one because of what
he was trying to express—a forward-reaching art.

Ribera, influenced by the realism of Caravaggio of Naples.

Zurbaran's studies of monks and saints.

Velasquez, the great genius of Spain, the world's mightiest genius
of technique. New artist vision, the "perspective of light." Some
of his paintings: many fine portraits, Christ on the Cross, The
Tapestry Weavers, The Maids of Honor, and others.

Murillo, lovable painter of happy children and gentle madonnas.

Goya, whose able canvases reflect the gay life of Spain.

Supplementary Reading

The Story of Spain, 14-5039
The Literature of Spain and Portugal, 19-7125

The Dutch and the Flemings, 5-1585

The Flemings: Trade centre shifted from Bruges to Antwerp.

Rubens, a fine and easy technician whose paintings glow with exuberant life. Some of his works: Coronation of Marie de Medici, The Descent from the Cross; portraits, landscapes, and others.

Jordaens.

Van Dyck, the "Cavalier Painter" in Italy, and court painter to Charles I of England. Many distinguished portraits.

David Teniers, the younger, who made "homely" pictures of Flemish life.

The Dutch: The art of Holland distinctly national and intimate, a "stay-at-home genius."

Frans Hals, the "laughing artist," a great portraitist. Large corporation groups and many portraits.

Salomon and Jacob Ruisdael, landscapists, rare painters of countryside, sky and shore. Some of Jacob's works: The Swamp in the Wood, The Mill near Wykby Duurstede, and others.

Hobbema, last great Dutch artist. Some of his landscapes: The Avenue of Middelharnais, The Water Mill, and others.

Van Goyen, painter of Dutch landscape in winter and summer.

Animal painters

Paul Potter—The Young Bull, and others.

Albert Cuyp—many landscapes with cattle as well as other subjects.

Genre painters

Gerard Terborch—high attainment in technique and color.

Jan Vermeer—modern in treatment of light and atmosphere.

Pieter de Hooch—Dutch homes depicted.

Jan Steen—varied subjects and styles in his story-telling pictures

Gerard Douw and Mieris.

Supplementary Reading

Belgium and Her People, 15-5495

The Story of the Netherlands, 15-5555

Rembrandt, 5-1709

Rembrandt Van Rijn—a Dutch master, a world genius and a tireless worker. Supremacy in etching: The Hundred Guilder Piece and other works. Superb technique in light and shade. Portraits revealing characteristics of individuals, and interesting as pictures. Some of his paintings: Sortie of the Banning Cock Company, The Lesson in Anatomy, The Syndics of the Cloth-workers' Guild, and others.

Supplementary Reading

The Story of the Netherlands, 15-5555

The Rise of French Art, 5-1873

Early influences from Italy and Flanders.

Beautifying of churches and homes, first by imported artists.

A period of imitative work by French artists.

Jean Cousin, called founder of the National School, though no truly national art then existed.

Royal patronage of the arts

Henry IV and Louis XIII.

Louis XIV, a dictator. The Academy founded.

Seventeenth-century painters

The **Le Nain** brothers.

Poussin, the classical painter.

Claude Lorrain, painter of a sun-washed world.

Charles le Brun, painter to the King and director of the Academy.

Beginnings of fine French portraiture.

Reaction from false splendors of Louis XIV's reign.

Eighteenth-century painters

Watteau, best of the painters of the "gallant" pictures. Some of his works: Embarkation for Cythera, The Dance, The Concert, and others.

Other "gallant" painters: Lancret, Pater, Boucher.

Fragonard's grace and charm.

Portraits by **Quentin de la Tour**.

Genre pictures: Chardin's home-loving people; the moral and sweetly sentimental canvases of Greuze.

Landscapes by Joseph Vernet and Hubert Robert.

Mme. Vigée le Brun, portrait-painter, an exile during the Revolution.

Supplementary Reading

The Beginnings of France, 10-3429

France in the Revolution, 10-3563

The Literature of France, 18-6559; 18-6711

Britain's Art Begins, 6-1999

Early skill in illumination of manuscripts—the monasteries, the art workshops. Scottish and English monks instructed by gifted Irish monks.

Progress retarded by the Black Death.

Foreign portrait-painters at the British court

Holbein and his influence. Miniatures by Hilliard and the Olivers.

Van Dyck and the style he founded. Some of his followers: William Dobson, "Old" Stone, Sir Peter Lely and Jameson.

Sir Godfrey Kneller, whose weak, flattering style became the vogue and a bad influence.

Hogarth, a great painter, the father of all modern realism in painting—originator of a new idea in art. Some of his works: Marriage à la Mode, The Rake's Progress, and others.

Supplementary Reading

Great British Painters, 7-2327

England in the Long Ago, 4-1315

- The Founding of the Nation, 4-1429
- The Beginning of Freedom, 5-1565
- Fighting for the Crown, 5-1679
- The Times of the Tudors, 5-1813
- The Times of the Stuarts, 7-2327
- A Shining Splendor Comes, 2-721
- Shakespeare's Plays, 3-833
- Shakespeare at His Height, 3-983
- Great Writers of Shakespeare's Time, 3-1117
- John Bunyan and Daniel Defoe, 4-1477
- Swift, Addison and Steele, 5-1619

French Art after the Revolution, 6-2077

Revival of classic interest and feeling

David, the leader in the new movement, practically a dictator in art. The break-up of the Academy.

Ingres, a great draftsman but an inferior colorist.

Prudhon, inferior in draftsmanship but skilled in effects of light and color.

Reaction away from classicism toward romanticism

Gros, a soldier who painted Napoleon's battle scenes.

Géricault.

Delacroix, the leading spirit in the new movement—his pictures composed in color.

Descamps, Fromentin, Flandrin, Delaroche, Meissonier, Regnault, Léopold Robert, Horace Vernet, and others.

Supplementary Reading

France in the Revolution, 10-3563

Napoleon and His Conquerors, 6-2199

The French Revolutionists, 6-2127

The Literature of France, 18-6711

The Golden Age of British Art, 6-2109

Sir Joshua Reynolds—many portraits in the grand manner, reflecting the old masters.

Thomas Gainsborough—a painter of nature—landscapes and portraits of women and children. Some of his works: The Blue Boy; Georgianna, Duchess of Devonshire; Mrs. Siddons; and others.

George Romney—portraits and historical scenes, interesting in composition, color and vivacity of effect.

Other English portraitists: John Hoppner, John Opie, Sir Thomas Lawrence.

Scottish portrait-painters: Allan Ramsay and Henry Raeburn.

Supplementary Reading

Great British Painters, 7-2327

From the Stuarts to Napoleon, 6-2097

Napoleon and His Conquerors, 6-2199
Doctor Johnson and His Friends, 5-1867
Poetry Goes Back to the Country, 6-2027
The Master of the People's Songs, 6-2135
The Tellers of Tales, 6-2253

A Century of Change in Art, 6-2229

Landscape in England—the open-air school.

Richard Wilson, a forerunner, touched by classic influences.

George Morland—landscapes with figures and domestic animals.

“Old Crome”—landscapes with trees, surrounded by light and air.

John Constable—the “father of modern landscape.” Some of his works: The Hay Wain, The Cornfield, and others.

Richard Bonington—seashore and street scenes.

J. M. W. Turner—painter of the natural world seen through a dream glory of light. Some of his works: The Sun Rising through Vapor, The Fighting Téméraire Towed to her Last Berth, and others.

Water-colorists

Girtin, Cozens, Turner, Cotman, Bonington, Stothard, Peter de Wint, David Cox, Copley Fielding.

Sir Edwin Landseer, a painter of animals.

The Pre-Raphaelite Brotherhood

The leading members: Holman Hunt, Sir John Millais and Dante Gabriel Rossetti.

Associates and contemporaries of the Pre-Raphaelites: Ford Madox Brown, Sir Edward Burne-Jones, Albert Moore, Lord Leighton, George Frederick Watts, and Sir William Orchardson.

Supplementary Reading

Great British Painters, 7-2327

The Wonderful Century, 7-2293

Wordsworth and His Friends, 7-2353

Byron, Scott, Shelley and Keats, 7-2489

Scott and His Stories, 7-2625

The Books of Dickens and Thackeray, 8-2731

The Writers of Essays, 8-2865

The Historians, 9-3201

Carlyle and Ruskin, 9-3311

The Fame of Alfred Tennyson, 10-3469

The Story of the Brownings, 10-3687

Nature Artists of France, 7-2369

Out-of-door study of nature, following the influence of the English painters Constable and Bonington.

The Fontainebleau School: Théodore Rousseau, Diaz, Jules Dupré, Daubigny, Chintreuil.

Painters of animals: Troyon, Rosa Bonheur, Jacques, Brascassat.

Corot—a school in himself—his genius, to give spiritual beauty to earthly things.

Jean François Millet, the greatest portrayer of peasant toilers.

Later nature painters: Cazin, Pointelin, Lhermitte, Harpignies.

Supplementary Reading

France in Modern Times, 11-3813

French Art Goes Out of Doors, 7-2475

Naturalism, leading to plein-airism and impressionism. The study of light, the chief problem.

Courbet and Manet, leaders in naturalism.

Bastien-Lepage and Dagnan-Bouveret, famous plein-airists.

Monet and Pissaro, leading impressionists.

Puvis de Chavannes, great decorative artist, opposed to impressionism.

Other painters who did not follow the new movement: Moreau and Baudry.

The Modern Movement in French Art, 8-2709

Many experiments in the use of pigment—tendency away from pure art in the direction of science.

Impressionists: Cézanne, Matisse, Renoir, Gauguin, Van Gogh, Degas, Carrière, Besnard, Sisley, Signac, Utrillo.

European Artists of Late Years, 8-2851

Russian: Vereshchagin, Ilya Répin, Jan Styka.

Swiss: Böcklin (who worked in Germany), Hodler, Burnand.

Scandinavian: Anders Zorn, Carl Larsson, Fritz Thaulow, Edelfelt.

German: Menzel, Lenbach.

Dutch and Belgian: The Maris brothers, Anton Mauve, Josef Israels, Wauters, Leys, Bosboom, Mesdag.

Spanish: Fortuny, Sorolla, Zuloaga, Picasso (high development of impressionism).

Italian: Boldini, Segantini, Previati, Ettore Tito, Modigliani, and others.

French: Simon, Dauchez, Ménard, Cottet, Bonnat, Carolus Duran, Henner, Bricard, and others.

British: Lavery, Orpen, Strang, Wilson Steer, Augustus John, William Nicholson, Munnings, Shannon, Brangwyn, and others.

The Way We Have Come, 9-3069

A brief summary of European painting from the Italian primitives to our own day.

Painting in the United States: I, 9-3325

Portrait-painters of the eighteenth and early nineteenth centuries:

Benjamin West, John Singleton Copley, Charles Willson Peale, Gilbert Stuart, Edward Malbone (miniatures), Thomas Sully, John Neagle, Chester Harding, Henry Inman, Charles Loring Elliott.

Early historical and figure painters: John Trumbull, Washington Allston.

Beginnings of true landscape

The Hudson River School: Thomas Doughty (a forerunner), Thomas Cole, Asher B. Durand, J. F. Kensett, and others.

Landscape of the grand style: Albert Bierstadt, Thomas Moran, Frederic E. Church.

New influences and impulses

Art study in Germany; later in France.

The Centennial Exposition at Philadelphia in 1876.

William Morris Hunt, an inspiring teacher.

George Fuller, a figure-painter modern in his effects.

John La Farge, a leader in decorative color work and design.

Frank Duveneck and **William M. Chase**, brilliant in technique and notable as teachers.

Supplementary Reading

Building Homes in the New Land, 2-543

Child Life in Colonial Days, 3-965

The Revolution, 4-1157

Building the New Nation, 5-1695

The Growing West, 6-1905

The Brothers' War, 7-2427

American Literature in Colonial Times, 12-4445

American Literature to the Civil War, 13-4625; 13-4725

Painting in the United States: II, 10-3447

George Inness, whose fine, poetic work spans various stages in the development of American landscapes.

Other painters of poetic landscapes: Wyant, Homer Martin and Tryon.

Winslow Homer, distinguished and truly American painter of marine views. Some of his paintings: Eight Bells, Maine Coast, Northeaster.

Whistler, living in Europe and delicately selecting among many influences, forms his own style. Some of his paintings: Nocturnes, The Music Room, **portrait of his mother**, and others.

Sargent, most famous nineteenth-century portrait-painter, working in France, England and America.

Other noted American artists who have lived in Europe: Edwin A. Abbey, Elihu Vedder, Mary Cassatt.

Mural decoration (impulse of the World's Columbian Fair at Chicago in 1893): Francis D. Millet, John W. Alexander, Kenyon Cox, Edwin H. Blashfield, and others.

Figure painters: Eastman Johnson, Thomas Eakins, George de Forest Brush, Thomas Dewing, Robert Henri, Charles W. Hawthorne, Irving Couse, Frank Benson, William Glackens, Cecilia Beaux, Arthur B. Davies, and others.

Abbott Thayer, who combined vision of beauty with knowledge of nature.

George Bellows, rated as the most distinctly "native" American painter.

Later landscape-painters: Ralph Blakelock, Albert Ryder, Willard Metcalf, Francis Murphy, John H. Twachtman, Childe Hassam, and many others.

Supplementary Reading

The United Nation, 8-2669; 9-3207

American Literature, 1865-1900, 13-4815

Recent American Writers, 14-5007

Painters of Canada, 10-3699

Paul Kane, first professional painter—pictures of Indian life.

Early artists of European birth: Daniel Fowler, Kreighoff, John Fraser, L. R. O'Brien, Jacobi, and others.

Foreign study for native painters. Royal Canadian Academy established in 1880.

Painters in various fields: Robert Harris, Homer Watson, William Cruickshank, Frederick Verner, George A. Reid.

Canadian artists well known in other lands: Horatio Walker, Wyatt Eaton, William Brymner, C. W. Jeffreys (distinctly Canadian landscape), Edmund Wyly Grier (notable portraiture).

Decorative painting: Frederick S. Challener, J. E. H. Macdonald.

Winter scenes and other striking landscape: Maurice Cullen, Clarence Gagen, A. Y. Jackson, Frank H. Johnston, Franklyn Brownell.

Marine painting: Robert F. Gagen, McGillivray Knowles.

Animal painting and other nature studies: Frederick S. Palmer, Frederick S. Haines, Mrs. George A. Reid, Arthur Heming (author-artist).

Later portrait-painting: Laura Muntz, Gertrude des Clayes, Frederick Varley, Ernest Fosberry.

Supplementary Reading

Canada as an English Colony, 3-941

Canada as a Nation, 4-1483

The French in Canada, 8-2949

Canada's Poets and Prose Writers, 14-5103; 15-5367



Sculpture

The First Sculptors, 11-3873

Man's first attempts at shaping clay and making ornamental design.

Egyptian—characterized by hugeness and repose; of great technical

skill but limited by strict conventions. Typical animal convention, the sphinx.

Assyrian and Babylonian—characterized by brute activity and exaggerated form. Records of war and the hunt. Typical animal conventions, five-footed winged bull and lion. Wide influence.

Persian—influenced by both Egypt and Assyria and characterized by ornate detail of decoration.

Supplementary Reading

Babylonia and Assyria, 2-647

Egypt's Fascinating Story, 3-807

Persia and Its Story, 3-909

The Early Days of Greece, 11-3987

Ægean art, drawing inspiration from nature; its sculpture generally on a small scale. Single large example: Gate of the Lions at Mycenæ.

Greek Sculpture.

Earliest Greek sculpture in various materials.

Achermos of Chios makes a statue showing movement and expression.

Early sculptures on the island of Ægina.

Great impulse after the Persian Wars.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Golden Years of Greece, 12-4215

Doric ideal—physical perfection.

Athenian ideal—beauty of thought.

Polyclitus—his statue of the athlete Doryphorus, the "rule" for proportions of man's figure.

Myron—his Discobolus, breaking from the convention that a sculptured body should be vertical in line.

Phidias, the greatest sculptor of all time. Some of his works: colossal statues of Athene and Zeus, the Parthenon frieze, and sculptures on other buildings.

Followers of Phidias. The Venus of Milo, probably made by one of them.

Supplementary Reading

The Story of the Iliad, 6-1983

The Glory That Was Greece, 3-1069

The Great Greeks, 2-701

The Followers of the Golden Age, 12-4327

Praxiteles—statues of freedom and grace, gaining great popularity—great skill of execution. Some of his works: Hermes with the baby Dionysus, Eros, The Faun, and others.

The Niobe group, authorship uncertain—Praxiteles or Scopas?

Scopas—expression of passion or suffering introduced upon faces of his statues.

The Mausoleum at Halicarnassus. Advance in treatment of drapery in the frieze.

The Victory of Samothrace.

Lysippus—a worker in bronze, no originals remaining. Employed by Alexander the Great. The Apoxyomenus, a new athletic type.

The Old Empires and New Europe, 12–4459

The Hellenistic age, following the conquests of Alexander.

Extremes of suffering expressed in sculpture. The Laocoön, the Dying Gaul, the frieze on the altar at Pergamum, the Colossus of Rhodes, and other large works.

The Apollo Belvedere and other famous statues.

Sculptures of children, introduced by Boethus.

Græco-Roman period. Art and artists of Greece transported to Italy. Roman copies of Greek masterpieces.

Byzantine art.

Early Christian sculpture in Gothic churches—the draped statuette replacing the nude statue.

Supplementary Reading

The Grandeur That Was Rome, 4–1191

Italy's Immortals, 13–4603

Italian sculpture starting in the thirteenth century.

Nicola Pisano, combining Roman and Gothic elements.

Ghiberti—his bronze doors for the Baptistery at Florence.

Donatello—his great equestrian statue of Gattamelata and a great variety of fine sculptured work.

Followers of Donatello.

Verrocchio—his famous equestrian statue of Colleoni.

Jacopo della Quercia, noted sculptor of Siena.

Famous **Florentine** families of sculptors: the Rossellini, the Della Robbias and their terra-cotta work, Andrea and Jacopo Sansovino.

Michelangelo—a sculptor who saw men as giants weighed down by Fate; fascinated by the anatomy of the human form. Some of his statues: David, Moses, figures for the Medici tombs, and others.

Three clever craftsmen: Cellini, Giovanni da Bologna, Bernini.

Supplementary Reading

The Builders of Florence, 5–1735

The Makers of Venice, 4–1455

Italy and Its Story, 12–4407

France and Her Neighbors, 13–4699

Free sculpture slowly developed from architectural decoration.

In Germany

Fine woodcarving.

Stone work and bronze statuary.

Adam Krafft and Peter Vischer.

In France

Fourteenth-century sculptors (French and Flemish): Claus Sluter and his followers.

Sixteenth-century sculptors: Michel Colombe, Jean Goujon, Germain Pilon, Barthélémy Prieur, and others.

Seventeenth-century sculptors (many under patronage of the kings, especially Louis XIV): Simon Guillain, François Girardon, Pierre Puget, Antoine Coysevox, the Coustous, Robert le Lorrain, and others.

Eighteenth-century sculptors (release from classic restraint): Jean Baptiste Lemoyne, Etienne Maurice, Falconet, Bouchardon, Jean Baptiste Pigalle, Jean Antoine Houdon, Clodion, Pajou and others.

Nineteenth- and twentieth-century sculptors: Barye, Rude, Carpeaux, Rodin, Bartholomé, and others.

Supplementary Reading

The Beginnings of France, 10-3429

France in the Revolution, 10-3563

France in Modern Times, 11-3813

Britain and Later Europe, 13-4853

In England

Gradual emergence of free sculpture from the decorations of Gothic buildings.

Figures in wood, stone, bronze and alabaster.

Grinling Gibbons, sculptor and decorator of the seventeenth and eighteenth centuries.

Eighteenth-century sculpture (imitative of classic style): Thomas Banks, Joseph Nollekins, John Bacon, John Flaxman.

Nineteenth- and twentieth-century sculpture: Alfred Stevens, John Henry Foley, G. F. Watts, Alfred Gilbert, Onslow Ford, Sir Hamo Thornycroft, Alfred Drury, Lord Leighton, Goscombe John, Bertram MacKenna, John Swan, and others.

The classic revival in Europe, about 1800.

Antonio Canova of Italy, the leading spirit.

Bertel Thorwaldsen of Denmark, a noted exponent.

Modern European sculptors: Constantin Meunier of Belgium, Ivan Mestrovic of Jugo-Slavia, Jacob Epstein in England.

Sculpture in the United States, 14-4933

A late and rapid development.

First carving in wood.

Early nineteenth-century sculptors: William Rush, John Frazee, Hezekiah Augur.

Foreign training and Italian influence: Horatio Greenough, Thomas

Crawford, Hiram Powers, Randolph Rogers, Erastus D. Palmer, W. W. Story, Harriet Hosmer, and others.

Equestrian statues and portraiture, 1850-1890: Thomas Ball, Clarke Mills, Henry Kirke Brown, Olin Levi Warner.

J. Q. A. Ward, an admirable sculptor and an inspiring influence. Some of his works: *The Indian Hunter*; statues of Washington, Horace Greeley, Henry Ward Beecher, and others.

The Centennial Exposition at Philadelphia in 1876, an education.

Augustus Saint Gaudens—"the most illustrious figure in American art." Some of his works: *Admiral Farragut*, the *Lincoln Monument for Chicago*, the *Sherman statue in New York*, and others.

Daniel Chester French, whose work combines great technical skill with vision of truth and beauty. Some of his works: *Gallaudet*, the *Lincoln Statue in the Lincoln Memorial at Washington*, the *Angel of Death* and the *Sculptor*, the *Minute Man*, and others.

The Columbian Exposition at Chicago in 1893, a great opportunity and a strong impulse.

Leading sculptors since 1890: Frederick MacMonnies, Paul W. Bartlett, George Grey Barnard, Gutzon and Solon Borglum, James Earle Fraser, Hermon A. MacNeil, Cyrus E. Dallin, Charles H. Niehaus, Herbert Adams, Lorado Taft, Charles Grafly, Robert Aitken, and many others.

The Sculptors of Canada, 14-5075

Monumental sculpture and portraiture: Hamilton P. MacCarthy, George William Hill, Louis Philippe and Henri Hébert, Walter S. Allward.

Animal sculpture: A. Phimister Proctor.

Sculpture of athletic youth: Dr. R. Tait Mackenzie.

Sculpture of Canadian life and labor: Aurèle De Foy Suzor-Coté, Alfred Laliberté, Frances Loring, Florence Wyle, and others.



Architecture

The Buildings of the Old World, 14-5207

Architecture, "history in stone."

Primitive structures of stone.

Between Tigris and Euphrates

Construction of brick and sun-dried clay; buildings on platforms and terraces.

Chaldean, or Babylonian

Temples, palaces and ziggurats (holy mountains).

The wonder of Babylon and its imposing towers.

Assyrian—the grandeur of Nineveh in its palaces.

Persian—architecture of Assyria and Egypt combined with added richness of ornament; palaces at Susa and Persepolis.

In Egypt

The most colossal and enduring forms of building.

Column-and-slab structure.

Pyramids and other tombs.

Temples at Karnak and Luxor, Abydos, Philæ and elsewhere.

Pelasgic architecture in the Ægean region: the Treasury of Atreus, the palace at Tiryns; the Minoan palace at Knossos, Crete; and other structures.

Supplementary Reading

Babylonia and Assyria, 2-647

Egypt's Fascinating Story, 3-807

The Greek and Roman Builders, 15-5341

Greek architecture—logical, perfect in proportion, inspired by sense of beauty.

The three orders: Doric, Ionic, Corinthian.

Examples: the Parthenon, the Erechtheum, the Choragic Monument of Lysicrates, and others.

Theatres, stadia, gymnasia, etc.

Roman architecture—borrowed from Greek and Etruscan.

Differences between Greek and Roman: the Greek, the work of artists; the Roman, the work of builders, for strength and enduring qualities.

Arch and square and columnar structure.

Kinds of buildings: bridges, aqueducts, temples, palaces, baths, amphitheatres, circuses, etc.

Materials: stone, brick, terra-cotta, concrete.

Examples: the Colosseum, the Pantheon, the Temple of Vesta and others.

Supplementary Reading

The Glory That Was Greece, 3-1069

The Grandeur That Was Rome, 4-1191

The Eastern Builders, 15-5465

Saracenic architecture

Arabesque designs—brilliant geometric ornament.

Honeycomb treatment of surface.

The Moors in Spain

Famous examples of their art: the Giralda Tower, the Alhambra, the mosque at Cordova (Roman influence).

Mosques at Constantinople.

Materials, not lasting.

Architecture in India

Rock temples of Buddha.

Marble temples of the Jain faith; wealth of fantasy in carvings.

Hindu, or Brahman, temples.

Horizontal rows of sculptured design at variance with architectural form.

Influence of invasion by the Saracens, for better style.

Examples: the Kutab Mosque, the Taj Mahal, and others.

Architecture in China

Changeless through centuries.

Characteristic roof treatment and intricate decoration.

Temples, pagodas and palaces.

Architecture in Japan

Of the same general class as the Chinese, but daintier and lighter.

Supplementary Reading

The Rise and Fall of Turkey, 13-4797

India, the Pearl of the East, 8-2695

The Chinese Republic, 2-421

Japan and Korea, 2-561

Architecture in Christian Times, 16-5715

Basilican churches: St. Paul-outside-the-walls, Rome; St. Apollinare, Ravenna, and others.

Byzantine churches: St. Sophia and St. Saviour, Constantinople; and others. St. Mark's, Venice, Byzantine touched by Gothic and other influences.

Romanesque churches (developed from basilican), in France, Italy and Germany: L'Abbaye-aux-Dames, Caen; Notre Dame, Avignon; Cathedral, Baptistery and Leaning Tower, at Pisa; Cathedral of Worms; and others.

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The Beginnings of France, 10-3429

The Beginnings of Germany, 11-3959

Italy and Its Story, 12-4407

Gothic Architecture in England, 16-5963

Succeeding the English Romanesque, known as the Norman, style; strong traces to be seen in Durham, Peterborough and other cathedrals; round churches of the Crusaders.

Three periods of English Gothic

Early English—thirteenth century: Salisbury, Lincoln, Lichfield, and other cathedrals.

Decorated Gothic—fourteenth century: the Lady Chapel, Ely; parts of Exeter and other cathedrals; tombs, monuments and shrines.

Perpendicular Gothic—fifteenth century: Henry VII's Chapel and the Church of St. Margaret, Westminster.

Supplementary Reading

The Founding of the Nation, 4-1429

The Beginning of Freedom, 5-1565

Fighting for the Crown, 5-1679

The Golden Years in Europe, 17-6155

In France

Gothic supplanting and transforming Romanesque.

Lancet Gothic—twelfth century: St. Denis, Notre Dame, Lens, Soissons and other cathedrals.

Rayonnant Gothic—thirteenth century.

Flamboyant Gothic—fourteenth and fifteenth centuries.

Several periods often combined in one building.

In Germany

Transition from Romanesque to Gothic—latter half of thirteenth century.

“Hall” type of churches: St. Elizabeth, Warburg; Munich Cathedral, and others.

French Gothic: Cologne Cathedral, finest example.

In the Low Countries

Belgium: Antwerp Cathedral, of the Flamboyant period; Ypres, Ghent, and others show changing periods.

Town halls and guild halls, characteristic Flemish architecture: Cloth Hall at Ypres and others.

Holland: cathedrals at Utrecht, Haarlem, etc., simple but fitting.

In Italy

Pure Gothic rare in many parts, especially the south.

Milan Cathedral, resembling German Gothic—flawless in style and proportion.

The Duomo, Florence, Italian Romanesque, a monument of Florentine history.

San Francesco at Assisi, simple in style.

Cathedral at Siena, and many other famous churches.

In Spain

Gothic influence strongest in north, but with modifications.

Seville Cathedral, fifteenth and sixteenth centuries, second largest church in the world.

Moorish and other influences impressed on Spanish building—a record of history.

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The Renaissance in Italy, 17-6297

A reflowering of classic ideals.

Princely houses in Florence: the Riccardi, Pitti, Uffizi and other palaces.

Brunelleschi, first great architect of the Renaissance.

Fine buildings in Genoa and Milan.

The Certosa at Pavia—combining Gothic and Renaissance styles.

Bramante, architect of St. Peter's, Rome, and parts of the Vatican.

Michelangelo as architect—the dome of St. Peter's and other works.

The **Baroque**, or **Rococo**, style, the degeneration of Renaissance.

Venetian palaces and other buildings: the Palace of the Doges, Church of Santa Maria dei Miracoli, and others.

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The Builders of Florence, 5-1735

The Makers of Venice, 4-1455

Four Centuries in Europe, 18-6489

In England

The evolution of the English house.

The Tudor period.

The Renaissance and **Inigo Jones**.

Christopher Wren and his work.

Eighteenth-century architecture.

Gothic and classic revivals.

Nineteenth- and twentieth-century buildings.

In France

The châteaux from medieval times.

The Renaissance, and Italian influence: The Louvre—a masterpiece of four centuries; the Palace of Versailles; many churches.

Rococo influence and a classic revival.

The nineteenth century, with Gothic and Renaissance influences: the New Opera in Paris, and other buildings.

In Germany

Castles and public buildings.

Gothic feeling persisting through Renaissance influence.

Churches combining various styles.

In the Low Countries

Renaissance buildings and additions to Gothic structures: guild houses, town halls, churches influenced by Rococo style, and other buildings.

In Spain

Revival of classic feeling under Juan de Herrera and other architects: the Escorial and other buildings.

Renaissance influence: many palaces and churches. A mingling of styles—Moorish, Gothic and Renaissance; rich decoration: The Alcazar, Granada Cathedral, St. Estéban (Salamanca) and others.

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Tendencies imported from parent lands: Spanish Renaissance, German, Dutch, English ("colonial") traditions.

Early building, chiefly of wood and simple in design.

Charles Bulfinch, New England, first professional architect in the land.

From the Civil War to 1880, pretentious imitation of foreign modes. Churches by Upjohn and other architects: Trinity Church, Grace Church and St. Patrick's Cathedral, New York, and others.

"Richardson Romanesque": Trinity Church, Boston; Pittsburgh Court House; and other buildings.

From 1890 to the present.

New impulses under able architectural leaders.

Three main forces: Classical, Gothic, American Domestic.

The Columbian Fair at Chicago, 1893, an opportunity and a revelation.

Gothic and Tudor modes adopted by many universities.

Steel and ferro-concrete construction for great city buildings—a new development, distinctly American.

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How Man Makes Stone, 7-2305

See also illustrations for articles on the various sections of the United States and on the cities of Washington, New York and Chicago.

The Art of Furniture-Making, 18-6767

(Related to Architecture)

In England

Early developments: Saxon, Norman, French, Flemish, Dutch, and Italian Renaissance influences.

Queen Anne's reign, beginning of truly English mode.

Chippendale and the introduction of styles showing more lightness and grace.

The **Adam brothers**—architects who included all details of decoration and furnishing in their plans.

Hepplewhite, designer of beautiful chairs and other furniture.

Sheraton, an artistic genius of rare skill and taste.

In America

Crude beginnings in the colonies.

English furniture copied by cabinet-makers.

The **Windsor chair** adopted and developed.

Master craftsmen in woodwork: **Samuel McIntire** and others.

Duncan Phyfe, a master designer and maker of furniture.

For pictures showing early American furnishings see also 2-547 and 3-967.

Music

The Beginnings and Growth of Music, 19-6897

Primitive music and its sources.

Evolution of instruments: stringed instruments, wind instruments, percussion instruments.

Early scales and modes.

Wandering singers: troubadours, minnesingers and meistersingers.

Part-singing, counterpoint: the "round," or canon.

Illustrations of counterpoint and harmony.

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Johann Sebastian Bach: noble and majestic compositions for the organ; the "tempered scale" of to-day introduced in his Well-Tempered Clavichord series.

George Frederick Handel, composer of great oratorios: The Messiah, and other works.

Franz Josef Haydn, father of the symphony and of the modern orchestra; the Surprise Symphony, the oratorio of The Creation, and other works.

Mozart: clear, flowing music in perfection of form: symphonies, operas, and other works.

Gluck, a composer who reformed the opera.

Ludwig van Beethoven, whose music expresses the restless surge of emotion: nine great symphonies, and other works.

A transition from classic to romantic style.

Franz Schubert, a composer with a rare gift for melody; writer of symphonies and songs: the Unfinished Symphony, the Erl-King, and other works classic in form but romantic in feeling.

Mendelssohn, composer of charming polished music: Midsummer Night's Dream Overture, the oratorio Elijah, and other works classic in form but romantic in feeling.

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Robert Schumann, the first of the truly romantic composers; story-telling and descriptive music—symphonies, piano pieces and songs.

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Frédéric Chopin, introducing a new style of composition for the piano; beautiful poetic piano pieces.

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Berlioz: interesting orchestral works, *programme music*.

Franz Liszt: compositions and transcriptions for the piano: Hungarian Rhapsodies, and other works.

Richard Wagner, composer of a new form of opera, the *music drama*.

Johannes Brahms: classic forms enriched with new beauties: symphonies, concertos, chamber music, and other works.

Tschaikowsky, composer of mournful music that stirs the emotions.

Franck, inspired by church music of Bach's time.

Richard Strauss: powerful orchestral works.

Impressionism and other modern tendencies.

Debussy and Ravel.

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GRADED COURSES OF STUDY

AS GIVEN IN THE SCHOOLS

Arranged for the Convenient Use Of
Children, Parents and Teachers

Based on examination of the courses of study used in the school systems throughout the United States. Includes Study Outlines; Questions linking the Subject-matter to incidents of everyday life; Achievement Tests; Page References to answers, required information and pictures in The Book of Knowledge

WITH INTRODUCTIONS

Addressed to the Child, the Parent and the Teacher

BY

A N G E L O P A T R I

Principal, Public School 45, Bronx, New York

OUTLINES, QUESTIONS AND TESTS

IN

GEOGRAPHY, HISTORY, CIVICS, LITERATURE, NATURE STUDY
AND BIOLOGY

BY

ISABELLA STEWART

SCIENCE

BY

HARRY A. KRAIL

Assistant Principals, Public School 45, Bronx, New York



INTRODUCTION

MY CHILDREN: If suddenly one day there should come to you a gentle and kindly stranger offering you Aladdin's lamp or Cinderella's slipper or the magic carpet itself, you would consider yourself the most fortunate of children. There would be nothing you could not wish for and have promptly. You could go anywhere, do anything you ever dreamed of doing and live happily ever afterward.

Here then is your magic gift—this set of books. The quality that most delights us in a story is its truth. Neither you nor I would care a whit about a story that was not true. For us Cinderella finds her slipper and her prince. The genii spring from the earth at our bidding. Jack does slay the giant and carry the fortune home to his mother. More than ever is magic abroad in the world this day.

We can whisper a message across the sea and catch the answering whisper as it flashes back. We can throw a beam of light around the earth while you could say Abracadabra. We ride on the ocean and fly high in the air and harness the moon to our bidding. Magic, all of it, but the magic of truth and the knowledge of it. Armed with them the world is yours. No fairy godmother could wish you more. No friendly magician could do for you what you can do for yourself if you possess knowledge and understanding.

From the beginning men have searched out secrets of earth and sky and the places under the earth. For centuries they have searched and written down their findings and passed on leaving their stories behind them to make the way plainer for those who followed. Each generation has read, searched, written and passed on in its turn. Each new child of earth has read the messages and found in them the old command, "Seek and ye shall find." Each healthy, happy child has caught up the challenge and presses forward. Each has started where some older searcher has laid down his tools, left his unfinished task.

Some of these elders watched by night on lonely hills studying the ways of the stars. Year after year they watched and set down what they saw, a great line of scholars, so that now there is a long story of these mysterious torches of the sky. A long story yet unfinished. Perhaps you are to be one of those who will take up the tale. Who knows?

Others watched and listened and traveled about the world to see and tell of the strange ways of men. Much of what they have written is sad enough but there is a store of it that will make you thrill with pride to read and remember that you, too, are a child of man. You, too, can live nobly and work great deeds. What men have done is the starting place for you. History holds much that is precious for you.

Always there has been a group tormented by the WHY of things. Why will a stone drop swiftly and a feather float about? Why does it thunder and why does it snow? What makes the wind blow? Why does fire burn and water quench? Always they knew that for every *why* in the world there is a *because*, and they searched for it. Their findings are written in the books of science, and science, my children, is magical truth. True magic for you. Seek and you will find it.

When I was a boy I heard a talking machine. Not such as you hear to-day, but very wonderful to me. I wanted so much to know how the voice got into the box, but there was none to tell me. I dared not ask the teacher and my mother did not know any more than I did about it. She wanted to know, too, but even the wisest neighbor of all did not know and could not tell us how the voice got into the box. You know all about it.

But if you don't and if you very much wish, as I did, to find out, all you have to do is to look in Volume 20 and find Sound, page 7620, and there you will find a long list of headings that promise you such delightful stories and such a treasure-trove of knowledge—and magic—that your mother will have to take your books away to get you to bed. Lucky child!

So it would seem, my children, that there is a great plan of life and you and I and

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the others about us have each a share and a place in the scheme. First of all we must know what has been done in the world and then start out to do our bit. We need never worry about it—just know what we are about, do the very best we can to make ourselves and those about us happy and carry this old world ahead just the little bit that is our portion.

You have here under your hand in this *BOOK OF KNOWLEDGE* the tools with which your forefathers toiled to carve out the steep places life offered them. You have here the materials from which they drew the magic that has lighted your homes, heated them, made them safe and clean. You have here the wisdom of your race, its art, its poetry, its idealism, its science, its life of service.

If you read it carefully, as you need it, you will find that it opens wide the door of opportunity to you. If you use the knowledge you find here wisely you will find yourself traveling new paths to new fields. If you form the habit of reading about the things that are new and strange you will find that you arrive a little farther beyond your starting place. And that, my child, is what education means! An old road, a tried road, leading you on to explore the new and untried route to your own success, the special niche that you will carve out for yourself.

THE BOOK OF KNOWLEDGE will help you travel far on that road. Take it with you and use it as Aladdin used his lamp. It will not, I promise, ever fail you.



TO PARENTS: You want your child to have the best that life can offer. You want him to succeed where you failed. You want him to enjoy where you could only look on. You want him to fulfill your dreams. To these ends you make heavy sacrifices. For the good of your child you carry a heavy burden.

You give up much that would lighten your load to give the child every advantage. You send him to the best school. You live in the best possible neighborhood for his sake. You plan to have him work and study and play with children who are fine and clean and wholesome, knowing how powerful a force a child's companions can be. But when all is said and done the child comes back to you as the source of his life. He will continue to come to you throughout his life, and you will know the beautiful relationship of parent and child in its fullness, if you make his coming worth while.

In the early days you are the comforter. You heal his bruises. You praise each fumbling effort. You encourage him after each childish defeat. He is close to you and the relationship is intimate and easy. Then the day comes when his horizon widens. He discovers much that is new and strange and comes to you for the right word. Well for you if you have it, for on that depends your future relationship with your child.

Out of your learning, out of your experiences, out of the sum of your life, you answer his questions. The whole of you is not enough. The field of knowledge is too vast for any one mind to compass. You must turn to the books for help.

"Mother, mother, I have a new job. We've finished the animals. Now we must do natural phenomena. Mine is rain. Everybody got something. Pat's is the snow and Bill's is the wind. Mine's easy. Rain. 'N the teacher said I had to learn a poem about the rain, too.

"I told her I knew a poem, two of them. 'The rain is raining all around,' and 'Rain, rain, go away,' but she smiled at me and told me to go learn a grown-up-er one. What do you know about rain, mother? I got to know a lot.

"We got to find out what rain means to man. It's the same as we did for the animals, only not exactly. I got to know the whole story in a week and learn the poem, too. What do you know about rain, Mom?"

"Just the usual things, I suppose. Rain is condensed vapor that falls from the clouds. But we can look it up to-night in *THE BOOK OF KNOWLEDGE* and learn a whole lot more."

Evening comes and mother and child turn to the books. "First I'll look in the index. Here it says 'Rain, Volume 8, page 2021.' Here's more. 'Causes of rain; how to measure rain; poems about rain.' It's all here. Gee, I'll have more'n anybody, Mom."

"There's quite a lot, my boy. Best take a bit at a time. You read about the rain and I'll listen, and then you tell me what you think about it. Then I'll tell you my sto-

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ries about the rain: how it nearly flooded out the town where I lived by making the river rise and rise; how I went out after the half-drowned chicks that strayed into the tall grass in the June thunder showers. And the big cistern we used to have to hold rain water. O, lots of things. You begin."

So you and your child are merged in the problem that will carry you far ahead on the road of knowledge and carry you together, which is most important to you. You will consult five volumes of *THE BOOK OF KNOWLEDGE*. You will talk over what you read. You will tell your tale of personal experience. You will weave your life into his. Valuable as the habit of searching after knowledge must be to the child far more so will be the close and harmonious association of parent and child. Something is born there between them that will last a lifetime.

But the child is not always in search of knowledge when he appeals for help. "The teacher is a mean old thing. Look what she did. Gave me a C for my science book and another for my geography. Two C's. I know I deserve higher. She gave Billy a B and his isn't any better. Isn't that good work, Mom? And she only gave me C. It's a skin."

The first inclination of a parent is to side with the complaining child. Be careful. Life will measure him impersonally and on severe standards. The sooner he learns to do this for himself the sooner he will succeed. The sooner he can look at himself critically and honestly the sooner he will learn to measure up to his best.

Take nobody's word for the child's ability and his product. See for yourself. Turn to the Test pages of *THE BOOK OF KNOWLEDGE* and you will find the standards and measurements of science and geography and any other school work your child does. Measure your child's work on that basis.

These standards and measurements are the result of testing and measuring the results of the work of thousands of school children. They are impersonal as a foot rule. The child will accept them as final and judge himself accordingly. By using them he will become conscious of his purpose in going to school, learn to work independently and without the disturbing emotions that rise out of teacher-pupil antagonisms. Once in this attitude toward his education he is well on his way to maturity and success.

The ideal that holds high place in the hearts of men is that of the teaching mother and the learning child. It is the symbol of man's chief desire in life. He knows that his stay here is brief. He knows he will lay down his work unfinished. He hopes that his child will take it up and go on beyond where his fathers left off.

The mother must prepare the child. She must teach and listen and lead and share with him the experiences of his growing time. Always there has been a great gap between home and school. Vainly the mothers have tried to bridge it by helping the children with their home work. The child protested, saying, "The teacher does not mean that." "She doesn't do them that way." "That isn't the kind we do."

If you take this Course of Study and turn to the grade where your child belongs, you will have before you the teacher's plan and the pupil's task. You can know exactly what has gone before, you can know accurately what the teacher is aiming for each day. You can be right and go ahead, helping your child in school and at home. You can help him to help himself, secure in the knowledge that school and home are at last linked and working harmoniously. With a gesture as easy as turning the pages of a book you have doubled your child's opportunities and multiplied his powers. That, I take it, is the high desire of all mothers to whom this Course of Study is offered.



TO THE TEACHER: We who have to do with children know how little, how very little, we can teach them. We know, too, that much of what we teach, much of what they so carefully prepare and recite, will be forgotten with the withering of the graduation flowers.

But we are secure on some points: We know that we can help a child, according to his power, to find his talents and increase them. We can set his tastes. We can teach him where to look for information and help him to form the habit of looking for it and using it rightly. We can give the child a certain attitude toward life that will bring suc-

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cess and happiness. Beyond that we can do little. From there on each child must help himself.

The greatest contribution the classroom can make to the child's formal education is teaching him to read. A child who can read intelligently has the tools of his education in his hands. He can, if he can use a good reference book, help himself toward any goal he may set. This self-help is the aim of all good teaching.

The text books are, of necessity, meagre. Their content is limited by the size of the book and the time allowed for its study. The teacher's energy is limited also. Nothing so depletes one's vital forces as a teaching day. It is plain recitations must be pared down to the bare essentials. School conditions demand rigid economy of time and subject matter and energy. Instruction must be pointed and brief and clear.

This is the day of specialized knowledge, the day of speed and accuracy. No time is allowed for ignorance or blundering, no excuse is granted the worker who is not equipped for his task. Some sort of power must be added to the teacher if the pupil is to go out with a knowledge deep enough, sure enough, tried enough to function in daily living.

It is for this emergency that **THE BOOK OF KNOWLEDGE** is offered. Teach your pupils its use and you have opened wide the door to an enriched self-education. Teach him the right use of this set of books and you have given him the means to serve his highest educational ambitions.

The teacher strives to help his pupil gain knowledge and make the right use of it independently; to make the unknowing child conscious of his plan and purpose in coming to school; to make him his own teacher. Once the child gets the idea the teacher's burden is lifted and his task becomes a joy. The unwilling child becomes the eager searching child whom it is a delight to serve.

We of the schools do too little to stimulate this hunger for knowledge. The school is usually set toward the administration problems rather than the child's full growth. The Course of Study would seem to be a secret between the superintendents and the teachers. The child's task is hidden from him and his lessons are like so many attacks from ambush.

The teacher gives and the child accepts. The lesson is the teacher's. The correction and criticism are made by the teacher. The tests are the teacher's and the ratings are his. Have you not heard the teacher say, "My questions," "My lessons," "My marks"? Any process that leaves the eager, constructive mind of the child out of consideration cannot be called education. Education lies in personal experiences, personal responsibility for work and conduct.

Turn things about a little. Take the child into confidence about his education. Show him the Course of Study as it is set down here and explain that it is the fund of knowledge that every school child of his age and power can master. Show him how to follow it through step by step and how to enrich it by the related reading. Teach him how to test his own work, measure his own power; to take an impersonal and critical view of his knowledge. Allow him to put his creative instinct on a job and you have given him the best of gifts, the power of self-help.

If you can take this attitude toward teaching you will find your function has shifted from that of the task-master to that of the leader and guide. You will find yourself acting as an inspirational force rather than as the dull, compelling dictator. You will discover that there is much of the adventure in search of knowledge still open to you and you will go forward with your pupils.

Curiosity, the instinctive desire to know what is as yet unknown, drives men to search as long as they are alive. The divine hunger to learn what is beyond the horizon drives him to seek and find and so magnify his increase and magnify his power on earth. This he must do if he is to be true to himself. Each step forward, each discovery made, turns his days of drudgery to moments of delight.

For the searching pupil and teacher there is no better source book than these we offer you. **THE BOOK OF KNOWLEDGE** holds much of what you need. Use it and you will find yourself growing in intelligence and power. Teach your pupils to use it and you will find them coming to your classes with shining eyes and eager minds.

Direct them to the Course of Study. It is no longer considered good teaching to keep the plan of work from the pupil who is doing it. Teach him to look back to what he has accomplished, reread the stories, review the problems, retake the tests, so that he kneads his knowledge into his mind. The older our knowledge is the richer it becomes.

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Teach him to look ahead so that he works intelligently toward his goal day by day. Fear rides with him who travels an unknown road, and modern teachers dread the entrance of fear into the minds of their pupils. Let familiarity take the place of the mystery once associated with the term's work in the Course of Study and the children will work faster, work more intelligently, and with the high spirit that self-help and the serenity of sureness bring.

He who opens to the questioning mind of a child the knowledge that increases his powers and stimulates his creative instinct blazes a trail for a new, a nobler race.

Angela Paton





GRADED COURSES OF STUDY

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GEOGRAPHY, 4TH GRADE

Average Age 9 to 10½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1. LOCAL OR HOME GEOGRAPHY.

(a) *Your home.*

Its location.

The materials of which it is made.

How it is built. Why?

(Climatic reasons)

How is it kept warm?

How is it furnished?

Associated facts

The directions from home and school. Topography (i.e. surface and land forms) of your home village or city and of your own state.

(b) *The food you eat.*

Its sources.

The farm, the country, a place where things are *grown* (pictures 18-6433, 10-3397, 1-115, 15-5276-77, 5279.)

How the food reaches your table.

(c) *The clothing you wear—your suit,*

your dress, your shoes.

Tell their story.

(d) *The occupations and industries of the local environment.*

The city a place where things are *made*.

The interdependence of the city and country. One cannot exist without the other.

Of what materials are most city homes built? (8-3012, 9-3210-12, 18-6690.) Country homes? Tell why. (5-1658.) Tom lives in a big house in the country. Of what material is his home constructed? (16-5985-96; pictures, 18-6428-29.) Name two places where it might have been grown. How was it brought to its present location? In what directions did it travel? How did it make the journey? By rail? By boat? Johnny lives in an apartment in a large city. (4-1215; pictures, 17-6209, 6219, 18-6688.) Of what material is his home built? Tell from where it came.

For breakfast, Johnny had oranges (6-2057), bread (1-371-84, 7-2423-25), butter and milk (7-2323-26). Where were these things grown or made and how did they reach Johnny? What food does the Eskimo child eat? (7-2563-66.) The Indian boy? (1-161, 14-5165, 12-4515.) How is this food obtained and brought to them? Do more or fewer people help to feed Johnny than help to feed the Indian and Eskimo? Why?

Johnny wears a stout woolen suit. Who first wore it? Not Johnny. (15-5575-88.) Who took the wool away from its first wearer? Tell the story of the journey of Johnny's suit from its first wearer to him. Johnny's shoes are heavy leather. (5-1549-58.) Who first wore them? How did they reach Johnny? (18-6440-55.)

In what ways do the people whom you know earn their livings? What are the chief occupations and industries of the sections where you live? How does the trapper earn his living? (12-4341-42.) Where does he work? (Use map.) How does he dispose of what he gathers? Who finally uses it? What does the fisherman do to earn his living? (11-4050-63.) Where does he work? What things does the city send to the fisherman, the lumberman, the farmer? How are these things sent? Who handles them? (2-410.)

COURSE OF STUDY

COURSE OF STUDY

2. HOMES OF OTHER CHILDREN OF OUR OWN LAND.

Types

- Eskimo child's home. (7-2564-66; picture, 8-2981.)
- Mexican child's home. (5-1656.)
- Canadian trapper's home. (Pictures, 12-4338-40.)
- Indian child's home. (1-161, 162; 5-1658; picture, 16-5835.)
- Fisherman's home.
- Stockman's home. (15-5276-77.)
- Lumberman's home. (16-5985-96.)

- (a) How each one of these is built and why? (Climate—Topography.)
- (b) The food and clothing of each. How obtained.
- (c) Occupations.
- (d) The animals, trees and flowers that grow about them.

Words of which you should be able to give the meanings

1. occupation
2. industry
3. product
4. export
5. import
6. resource
7. climate
8. customs
9. government
10. population

3. HOMES OF CHILDREN OF OTHER LANDS.

- (a) *South America.*
Manuel in Brazil. (19-7042-48.)

Homes in Temperate Zone

- Many kinds of industries.
- Many kinds of homes.
- Many kinds of food, animals.
- Many kinds of things grown.

- (b) *Europe.*
Swiss child. (16-5997-6009.)
French child. (11-3812-28.)
English child. (7-2292-2304.)

QUESTIONS

When the sun does not make it warm enough, how can we get heat? (3-785-802.) What men produce the heat givers? Where do they work and live? How do they send the heat givers to us? How does the Eskimo heat his home? What is the Eskimo's home called? (7-2564.) Which child lived in a Wigwam? How was the Wigwam heated? Who lived in a bark tepee? Where? (1-160-65; picture, 16-5835.) Why do I say *lived*, not *lives*? Who lives in a pueblo? (9-3028-30; pictures, 19-7237.) Which child lives in the country to the south of the United States? What things may his father do to gain a living? (19-7134-36.) You have a map of North America which shows all of the countries. Take your map and see how many towns and cities you find in this country. Make a *traced* map of Mexico. Cut out Mexico. Place a sheet of paper with Mexico cut out on the map of North America, so that the opening will cover the eastern part of the U. S. Count the towns and cities to be found within this territory in the U. S. Compare the number with that found in Mexico. How would you expect the people of Mexico to earn their livings? Repeat this exercise with Canada. (1-110-12.) What occupations do you find in the countries with many cities? in countries with few cities? What is meant by the "chief industry" of a place? Who sends us herring? salmon? How are these caught? How shipped to us? How are they kept from spoiling? (11-4050-61, 1-113.) Who sends us beef? (9-3207.) Where does he live? (15-5276-77; 18-6435.) What other things does he send to us? What must he buy from cities?

Describe a home in the zone where the sun shines strongest. (Picture, 8-2830-31.) What plants and animals do we find there? (19-7142; pictures, 8-2695-98, 2827.) Manuel lives in South America. Map. (19-6856.) What great mountains rise to the *west* of his home? What things are grown near Manuel's home? (19-6975-82.) What child lives near the Alps Mountains? (16-5997-6009.) What child has Paris for the capital of his country? (11-3812-28.) What children live in the British Isles (7-2292-2304.) What is the chief city of each of these countries? What child lives in the valley of the Rhine? (12-4160-80.) What things are raised in his country? Which of

COURSE OF STUDY

German child. (12-4160-80.)
 Spanish child. (14-5039-53.)
 Italian child. (13-4564-76.)

- (c) *Asia.*
 Chinese child. (2-421-36.)
 Japanese child. (2-560-74.)
- (d) *Australia.* (7-2462-73.)
 Shepherder's child.
- (e) *Homes in Hot Lands (Torrid Zone).*
 African negro child. (18-6802-14.)
- (f) *Island children.*
 West Indies. (19-7096-7104.)
 Iceland. (15-5298.)
 Philippines. (10-3588-91.)
 British Isles. (7-2292-2304.)

4. PHYSICAL GEOGRAPHY

Motions of the earth. (1-17-24,
 235-39.)
 The earth takes a journey every day.
 Every year, it takes a greater jour-
 ney around the sun.
 What causes change of seasons?
 (8-2791-94.)
 The amount of sun influences man's
 manner of living. (8-2663-68.)
 Lands under the direct rays.
 The equator.
 Heat Belts—Zones.
 The great land divisions. (1-42-48.)
 Bordering waters.
 Chief mountain ranges. (7-2537-42.)
 Chief rivers.
 Bays, Gulfs.

5. POLITICAL GEOGRAPHY

The chief countries in each conti-
 nent, largest cities.
 Review by going back over children's
 homes.

QUESTIONS

these countries you have studied have kings?
 Which are republics? What things does
 Spain send us? (14-5039-53.) Italy? (13-
 4564-76.) In what continent is China?
 (2-421-36.) How do the Chinese earn
 their livings? Name two great rivers in
 China. What is a junk? What things do
 we get from China? What things does
 China get from us? What are the chief
 industries of Japan? (2-560-574.) What
 beautiful things are made in China and
 Japan? If a ship from an African seaport
 sailed into San Francisco what cargo would
 you expect it to carry? (18-6802-14.) What
 cargo might it carry back? What is the
 chief export of Australia? (7-2462-73.) In
 what continent is there the least manufac-
 turing?

Children illustrate motions of the earth by
 drawings, by dramatizations and games.
 What are zones? In which one do you live?
 Which are the frozen zones? In which zone
 do the dwellers have the easiest existence?
 (8-2663-68.) Why? Which is the best zone
 in which to live? Why? In which direction
 does your shadow point at *noon day*? Do
 all places within the same zone have the
 same climate? If you lived *south* of the
 equator in what direction would your
 shadow point at noon day? Describe a
 home in the zone which has the least sun-
 shine. (7-2564-66, 8-2981.) Tell who
 built it and how. What people live there?
 How are they dressed? What is their food?

Here is a list of the continents and a list
 of countries. Arrange the countries so that
 they will be opposite the continents in which
 they belong.

| | |
|---------|---------------|
| Brazil | Asia |
| Canada | Europe |
| Japan | South America |
| France | North America |
| India | South America |
| Chile | North America |
| U. S. | Asia |
| China | Europe |
| Germany | North America |
| Mexico | Africa |
| Egypt | Asia |

THINGS TO DO (GEOGRAPHY, 4TH GRADE)

1. Make a map of your own locality. If you live in the city, make the map of your own block. Show your home. Remember there is something you must learn that is called *scale*. What does the word mean in connection with maps? If you live in the country, make the map of your own section. Show railroads, roads, streams, high and low land, and any important buildings.
2. Get a large blank book. Keep it as a scrapbook in connection with your work in geography. As you study a topic collect all the pictures you can that refer to it and paste them into your book. Be sure to label each picture. Do not scatter them. Put all pictures on a topic together.
3. Make product maps. Make an outline map of the country you are studying. Try to get a sample of each important product. Paste or fasten it in its correct location.
4. If there is a market anywhere near you, visit it. Try to learn from what place each thing there came.
5. Study the freight cars on the track. Write down their home labels. Go home and look up their starting point on your map. Try to trace their journeys.
6. Visit any important manufacturing plant in your vicinity. Learn where the materials used there are obtained. Where is the finished product sent?
7. Visit your butcher, grocer and dairyman. Find out the journey made by their goods. Remember labels will teach you much geography.
8. Go out into the street or road after a rain. Find a river system, an island, a bay. Use your sand pile. Make a cape, a gulf, a mountain range, a peninsula.

TESTS (GEOGRAPHY, 4TH GRADE)

COMPLETION

Can you pass this test? You should be able to answer at least three-fourths of the questions correctly. Fill in these blank spaces with the correct answers.

1. Eskimos live in the Zone.
2. Their clothing is made of and
3. The place where the sun's rays fall most directly is called the
4. and are valuable heat givers.
5. A bay in the northern part of the continent on which we live is called
6. Fishing is chiefly carried on along
7. Most lumber is grown in the and shipped to the
8. Wool is gathered from
9. The longest river in South America is
10. The Appalachian Mountains are in the part of

FALSE-TRUE

If you think any statement made here is *true*, place a plus (+) after it. If you think the statement is *false*, place a minus (—). Example—"The United States is in the Torrid Zone." This is not true, but false, so we place a — next to it. If the statement had read,

TESTS

"The United States is in the North Temperate Zone," it would have been true and should have received a +.

1. The Eskimo makes great use of reindeer.
2. Much coal is mined in New York State.
3. Canada is a great grain-raising country.
4. "North" on the map is always high land because it is "up."
5. Rivers always flow south.
6. The sun travels around the earth.
7. Much corn is raised in the central part of the United States.
8. Bears, wolves and panthers are found in the North Temperate Zone.
9. Zones are heat belts.
10. There are no countries in North America that touch the North Frigid Zone.

(NOTE. If you wish to be counted right, you must do *exactly* what the question tells you to do.)

JUDGMENT

1. Check any of these names which you think belong to *gulfs*: Mexico, Hudson, St. Lawrence, Biscay, Bengal.
2. Arrange these names in a list. Tell whether each one is a *bay, river, mountain, or city*. Next to your answer place the *country* where it is found: Amazon, Himalaya, Alps, St. Lawrence, Chile, Philadelphia, Nile, Tokio, Plata, Bengal.
3. On Johnny's dinner table one day in December are beef, bread, coffee, raisins, oranges. Tell the country or state from which each one came.
4. Wheat is an important crop in France, England, Canada, Brazil, the United States. Cross out all words necessary in order to make this statement correct.
5. An export is something (a) sent *out* of a country (b) brought *into* a country. Cross out all words necessary in order to make this statement correct.
6. If I go from New York to London, I must cross the Pacific, Gulf of Mexico, Atlantic, Gulf of St. Lawrence. Cross out all words necessary in order to make this statement correct.
7. Grazing is an occupation, a product, an export, an import. Cross out all words necessary in order to make this statement correct.
8. Catching seals is an important industry in Mexico, Great Britain, France, Canada, Alaska. Cross out all words necessary in order to make this statement correct.
9. Canada is (a) more thickly settled than the United States (b) less thickly settled than the U. S. (c) has about the same population as the United States. Cross out all words necessary in order to make this statement correct.
10. China carries on (a) much manufacturing (b) very little manufacturing (c) practically no manufacturing. Cross out all words necessary in order to make this statement correct.

GEOGRAPHY, 5TH GRADE

Average Age, 10 to 11½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. THE WORKERS OF OUR OWN CONTINENT.

The different things they prepare, grow and make. How they send their products across the seas. Review the homes on the continent of North America. (See 4th grade.) We see that people live in many different kinds of homes on our own continent. What things make their ways of living, homes and occupations so different? Why does the Eskimo live in an igloo and catch seals for a living while our Canadian cousins raise wheat and cut lumber? Climate, topography, natural resources.

2. TYPE OF WORKERS IN NORTH AMERICA.

- (a) The Farmer. (Kinds of farmers.)
- (b) The Shipper. (Ways of shipping, transportation.)
- (c) The Manufacturer. (*What he makes.*)
- (d) The Merchant. (*What he sells. How he receives it.*)
- (e) The Builder. (*How he gets his materials. From where?*)
- (f) The Laborer.

Those who work on

Plantations. (8-2782-84;

13-4520-25.)

General Farms. (10-3404-08;

15-5274-84.)

Ranches. (15-5276-77;

18-6435.)

Market Gardens. (7-2613-24;

10-3406.)

Fruit Farms. (6-2056-68; map,

19-7247.)

Dairy Farms. (1-371-84.)

Haciendas or Fazendas.

(19-7048. See Index.)

What is raised on each of these?

Trace the routes taken by the products of North America to the different countries of the world. (1-44-45, 48.) What do those countries send us in return?

QUESTIONS

What is a continent? Which is the largest continent? (Map, 1-44-45.) Which is the smallest? Where does North America rank in size? What do we mean by the Western Hemisphere? Name the countries of North America. (Map, 1-152; 19-7133.) Give a type of home found in each. Make an outline map of North America and show on it the localities where farming is the chief occupation. (1-154.) How many kinds of farmers can you name? What is raised on plantations? (8-2782-84.) What is the most important crop in Canada? (1-112-114.) In California? (6-2057-58.) In what section do we find the most general farming? (1-154.) What type of farm do we find in the vicinity of large cities? (10-3406.) Name all the means of transportation in North America you can think of. (2-408-20; 13-4787; 1-166-84.) Give reasons for shipment of goods by water; by rail. How would you ship lumber? (16-5985-96.) Fruit? Meat? (2-410.) Why is it possible for us to have on our tables food from all parts of the continent? Why was this not possible in Washington's time? (5-1698-1700; 5-1610-18.) What are the chief manufactures of your own state?

COURSE OF STUDY

QUESTIONS

3. NORTH AMERICA.

(a) Surface.

Let us take an imaginary journey. We will fly over North America in an airplane. (1-152-54.) From what we learn we will make a sand table map showing the surface of North America. This is called a *physical* map (i.e. one which shows natural features, topography). What is a political map? The surface of our country will teach us many things concerning occupations and products.

Natural divisions

1. Atlantic Coastal Plain.
2. Appalachian Highland.
3. Great Central Plain.
4. Rocky Mountain Highland.
5. Great Plateau.
6. Pacific Coast.

What occupations would you expect to find in each?

(b) Drainage.

The great river systems

Mississippi (16-5653-60), St. Lawrence (6-1955-63), Yukon, Hudson. (See Index.) Sections drained by each.

Rivers

Ohio, Missouri, Delaware, Arkansas, Colorado, Columbia, Red (see entry in Index under each name), Rio Grande (19-7131, 7133). (See Index.)

Indicate the dry-desert areas. (9-3025-32.)

Uses of rivers

1. Irrigation. (7-2543-55.)
2. Transportation. (13-4881-88; 17-6040, 6044.)
3. Turn mill wheels to furnish power. (15-5428-38.)
4. Carry down and distribute fertile soil. (7-2537-38.)

(c) Climates of North America.

(Review zones.)

(d) Surrounding waters.

(e) Resources and products by

1. Surface.
2. Countries.

In which hemisphere is North America? If we sail straight westward, to what continent will we come? (1-44-45.) If we sail southwest? If we sail eastward? What continent lies south of our own? What great mountain systems do we find in North America? (1-152-54.) Which ones go with us all the way on our journey from Alaska to Central America? What minerals are mined in those mountains? What is a plateau? Make one in sand. Point to two on a map of North America. What occupations do we find on the Atlantic Coastal Plain? Why are these occupations carried on where they are? Why not some others? What great crops do we find on the Great Central Plain? Name five fruits we use the year round and tell where each is grown. (6-2056-68.)

Name four uses of rivers. What kinds of rivers furnish power? (15-5428-38.) Name two such rivers. Which rivers are useful for transportation? (17-6040, 6044.) Do we use rivers for that purpose as much as we did seventy-five years ago? (13-4881-88.) Why not? Which large river systems drain North America? (7-2537-38.) Where does the water in these rivers come from? (6-2249.)

What is climate? (8-2663-68.) Within what zones does North America lie? What countries in North America lie within the North Temperate Zone? Do all the places within the North Temperate Zone have the same climate? What part of the United States lies partly within the North Temperate and the North Frigid Zones?

COURSE OF STUDY

COURSE OF STUDY

4. ALASKA. (10-3583-84; 16-5789-95.) Belongs to what country? Find out when and from whom Alaska was purchased. Do you think it was a good bargain? Give reasons for your answer. Of what value is Alaska to the United States? What value is the United States to Alaska? What resources in Alaska's waters? Find out what factors hinder the commerce of Alaska. Alaska's advantages. Her disadvantages. Her resources. Let us take a trip to Alaska. Find out from the railroad or steamship agent near your home what he considers the best way to reach Alaska and to what cities in Alaska you may go. What would be the best seasons of the year to make your journey? Why? Trace our routes on the map. Gather all the material you can for your geography note book.

Special reports

Gold mining. (19-6843; picture, 6-1921.) Salmon fishing and canning. (11-4053-61; 1-113.) Seal hunting. (3-997-1004.) The mountains of Alaska. Cities of Alaska. A dog team. (Pictures, 12-4339; 7-2494.) Transportation.

5. CANADA. (1-104-16; 7-2557-62.) Is Canada larger than your own country? If so, how much larger? Look at the map. Which parts of Canada are thinly settled? Tell why. Which parts are more thickly settled? Repeat the exercise for comparison that you did in 4th grade U. S. and Canada. Make a relief map of Canada with modeling clay. What highlands and mountain systems do you find? Indicate the large rivers. What useful work do you think is done by the rivers of Canada? Show the timber line. Color the regions where wheat is grown. Climate of Canada. Review your reasons for settlement and look again at your map of North America. What climate do you think is found in the various sections of Canada? Look at your physical map. What resources would you expect to find in Canada? What homes did we visit

QUESTIONS

ALASKA. (10-3583-84; 16-5789-95.) What natural resources made Alaska a good bargain for the United States? Alaska's climate an advantage, a disadvantage, or both? What is the most important city of Alaska? What products does Alaska send to the United States? What do we send her in return?

CANADA. (1-104-16; 7-2557-62.) With what large country in North America has the United States the longest friendship? How many forts stand on the northern border-line of the United States? What do we mean by *natural boundaries*? What natural boundary between a part of the United States and Canada? What do we mean by the timber line? Where does it lie in Canada? (7-2560.) How far north in Canada may wheat be grown? Why are Edmonton and Winnipeg so important although they do not rank high in population? Describe the fisheries along the different coasts. (7-2496-2509.) Locate the most thickly settled part of Canada and give its extent. Why is this so? Why has so much of Canada, which was discovered at the same time as the United States, been so thinly settled, while our own country has been so well populated? Why is Vancouver warmer than Augusta, Me., although it is farther north? What things does Canada export? What must she import? Compare Canada and the United

COURSE OF STUDY

there in the fourth grade? Chief cities of Canada: Montreal, Quebec, Toronto, Ottawa (capital). (See Index under name of each city.) Government of Canada. Transportation. (4-1490-93.) How many railroad systems do we find in Canada? What loads do we expect to find on the freight cars? Water transportation is important in Canada.

- (a) Rivers.
- (b) The lake routes to the sea. (6-1955-62.)
- (c) Newfoundland—its fishing.

Special reports

Canadian fisheries, wheat farming, lumbering. A winter trip out of Winnipeg. (7-2557-62.) Royal Canadian Mounted Police. (16-5831-38.) Hudson's Bay Company. (12-4337-42.)

Provinces

Alberta.
British Columbia.
Manitoba.
New Brunswick.
Nova Scotia.
Ontario.
Prince Edward Island.
Quebec.
Saskatchewan.
(See entry in Index under each name.)

QUESTIONS

States as to (1) size, (2) surface, (3) climate, (4) amount of wheat grown, (5) manufacturing, (6) number and lengths of railroads, (7) minerals. What good transportation route to the sea has Canada? (6-1955-62.) Why is Newfoundland always discussed separately from Canada?

6. NEIGHBORS TO THE SOUTH. (19-7131-42.)

To the City of Mexico by rail. Could we have gone by any other route? Trace it. Do you notice any difference between the houses and those of your homeland? The City of Mexico seems to rest in the centre of a large bowl. Find out how the city is drained. Notice the beautiful mountains that surround it. Mexico is able to raise many different kinds of farm products. Find out why. We notice many mines and large wells. What resources do they indicate? Where are the cow plains of Mexico? Look at the relief map. (Make one as you did for Canada.) Would you like to live in Vera Cruz? Give your reasons.

Special reports

Government of Mexico. Railroads. The Aztecs, Yucatan and

MEXICO. (19-7131-42.) How is the City of Mexico drained? Draw an outline map of Mexico and fill in on it the surface features. What are the two routes by which the City of Mexico may be reached? Which would you prefer? Why? Describe the climate of Mexico. What things about the vegetation tell you that you are in a hot country? What is meant by the variety of Mexico's climate? What volcanic mountain can be seen from the City of Mexico? (Picture, 19-7131.) What is a volcanic mountain? (7-2313-14; 8-2873-74.) Mexico has attracted much foreign capital. What resources are responsible for this? Make a product map of Mexico. How and where does Mexico ship her products? What is sisal? (8-2785, 2788.) What things must Mexico import? (11-3791-92.) Why is Tampico important? Compare the number of railroads in Mexico with the number in your own country. Who were the Aztecs? What language is chiefly spoken in Mexico?

COURSE OF STUDY

COURSE OF STUDY

Sisal. (8-2785, 2788.) Transportation in Mexico. Schools in Mexico. As we go toward Central America the temperature climbs higher and higher. Why? How would you like to live down in this part of your continent?

7. CENTRAL AMERICA. (19-7142.)

What time of year do visitors from the North come down here? Suppose you were a planter in Central America. To what part of Central America could your family go during the hottest months? (19-7142.) Make a relief map as you did for Canada and Mexico. (19-7133.) Notice the rivers very carefully. You have learned something of the climate. Be able to describe it fully. Cities of Central America:

Panama.
Salvador.
Costa Rica.
Honduras.
Guatemala.
Nicaragua.

(See entry in Index under each name.)

Products.

Transportation in Central America.

Special Reports

Earthquakes. A coffee plantation. (6-2178-79.) People of Central America. United Fruit Company.

Cuba. (19-7102.)

- (a) Location—Climate.
- (b) Government. (10-3590, 3592.)
- (c) Industries and products.

8. SOUTH AMERICA. (19-6974-83, 7033-50; map, 19-6856.)

It is January and I am standing on a pier in New York City, watching a great white boat making ready to sail. People are talking gaily of soon being able to discard heavy clothing. The boat is a United Fruit liner and it is going to South America. Through what waters will it pass to reach the South American ports on the western coast? (1-44.)

(a) Climate.

Comparison with North America. Zones of South America. Vegetation.

QUESTIONS

Compare the school system of Mexico with that of the United States. Tell something of the troubles undergone by the government of Mexico.

CENTRAL AMERICA. (19-7142.) Describe the climate of Central America. Of what countries is Central America composed? (Map, 19-7133.) What are the chief methods of transportation here? (Map, 1-48.) What are the most important products of Central America? What company imports much fruit from this part of the continent to the United States? What islands are near Central America? (19-7097.) To whom do they belong? Name their chief products. What island is one of the greatest sugar producing regions of the world? Cane or beet sugar? (10-3415, 3416, 3418; 19-7247.) Compare the school system and government of Central America with that of the United States. (19-7142; 5-1787-93.)

SOUTH AMERICA. Why do people speak of the "two Americas"? Why do they speak of the Western Hemisphere as the "New World"? (1-89, 242; 8-2980.) What line crosses the northern part of South America? (19-6978.) What connection is there between this line and South America's climate? (8-2666, 2794.) Which parts have a heavy rainfall? What are pampas? Llanos? (6-2171.) Why is the upper valley of the Amazon *not* settled? What parts of South America are thickly settled? Why do you think the greatest number settled where they did? Indicate railroads and rivers on your map. Which coast of South America has the

COURSE OF STUDY

- What crops will do well in South America? Rainfall.
- (b) Surface. (19-6857-63.)
Compare with North America. Make a relief map. (Map, 19-6856.)
What occupations would you expect to find on those broad plains? What minerals in the Andes? (19-6976, 6978, 6982, 7038.)
- (c) Rivers.
A trip up the Amazon. (19-6863.)
- (d) People and occupations.
- (e) Products—sent to North America?
What does North America send her southern sister?
The Story of Rubber. (4-1405-14.)
The Story of Coffee. (6-2177-84.)
The Story of Cattle. (19-7034-35.)
- (f) Cities.
- (g) Government. (19-6975, 7033.)
Study Brazil (19-7040-46), Argentina (19-7036-38) and Chile (19-7036-40) separately.

Things to Do

1. Write to the United Fruit Line for literature.
2. Make a scrap book containing all the pictures you can find concerning South America.
3. Choose one of the advertisements of South American cruises. Make believe that you are taking it. Write an account of your travels, telling what you see and learn.

Words you should be able to spell

- Llanos. (6-2171.)
Pampas. (6-2171.)
Tropic of Capricorn. (See Index.)
Isthmus. (See Index.)
Nitrate. (See Index.)
Quinine. (8-2909-10.)

9. THE UNITED STATES IN DETAIL. (8-2669-80; 9-3207-20; 10-3397-3400.)

Always begin this study with your own group of states.

- (a) The Northeastern States. (Map, 10-3400, 3401-08; 11-3773-82; 12-4145-52.)
1. General Surface features, climate, rainfall.

QUESTIONS

better harbors? (Map, 19-6856.) What advantages does its climate give South America? What disadvantages? (9-3101.) South America is rich in products. Indicate at least *six* on a product map. (19-7247.) Describe the vegetation you would see if you took a trip up the Amazon. What different peoples live in South America? What language is chiefly spoken? (19-6975-83; 7033-47.) What is the prevailing type of government?

Special topics

- Rio de Janeiro. (19-7042-46.)
Buenos Aires. (19-7033-36.)
Simon Bolivar. (19-6975-76.)
A scene on the Pampas. (19-7034-36.)
The cargo a ship might carry from Buenos Aires to New York—the return cargo.
The Panama Canal. (1-360-67; 10-3594-96.)
The Tacna-Arica Dispute. (19-6980-82.)

What natural resources are possessed by the Northeastern group of states? Why do we find so much manufacturing in New England? What type of farming do we find in New York State? (10-3404-06.) Why?

COURSE OF STUDY

COURSE OF STUDY

2. Natural Resources. (Do not forget to include rivers and harbors.)
3. Occupations and Industries.
4. Products.
5. Populations. Kinds of workers. Variety of work.
6. Manufacturing—What? Where?
7. Coal Mining—Why are manufacturing and coal mining connected?
8. Dairying.
9. Fishing.
10. Transportation.
11. Cities. Reasons for their location.

As a type state study your own if you live in this group, if not take New York as type. Cover all the points mentioned above.

Problem

What natural advantages made New York the largest city in this section? (12-4145-47; 13-4886-88.)

Special assignments

The steel industry. (6-1935-54.) Waterways—including canal locks. Make drawings and models showing how these operate. (13-4881-88, 4785-93.) Manufacturing in New England. Dairying in New York. Coal Mining. (3-785-802.)

1. Bituminous.
2. Anthracite.

- (b) North Central States. (15-5273-84; 17-6037-48; 19-7105-24.)

Cover 1, 2, 3, 4 and 5 as above.

6. Manufacturing. What are the manufacturing cities? How do they obtain coal? Is there coal in this section? What kind? Where? Trace the journey coal must make to reach them. The automobile industry. Trace the journey of the raw materials needed in the automobile industry.
7. Mining—iron, copper. Where? How?
8. Agriculture—chief crops. Study climate and rainfall. What connection is there be-

QUESTIONS

What great natural advantages has New York? Why has it grown so much more rapidly than Philadelphia? (12-4145-47; 13-4886-88.) Illustrate your answer by using a map of New York State. Why is Pittsburgh an ideal steel centre? (11-3773, 3777; 17-6037-38.) What kinds of coal are mined in this section? (11-3773.) What uses are made of each kind? For what are Boston (17-6177), Philadelphia (18-6826) and Buffalo (13-4888) famous?

How may a cargo of wheat be shipped from Chicago to the Atlantic coast by water? (13-4881-88.) What natural resources must a city possess in order to become a great manufacturing centre? (11-3773-82.) Name at least three. Locate the corn belt. (8-2678.) What states lead in corn raising? (15-5280-82.) What climate is favorable to corn growing? In what form does corn reach you? (1-372; 5-1856; 7-2424.) Tell the story of the ham on your breakfast table. (5-1717-25; 7-2512-13; 9-3207.) Name at least three products obtained from hogs. (7-2513.) Name at least three factors that make Chicago the largest city of its section. (19-7105-24.) List the canned meats in your grocer's window. Trace the progress of each one from

COURSE OF STUDY

tween the corn crop and hog-raising? (15-5282.)

Why is Chicago a meat-packing centre? (9-3209.)

9. Transportation.

(a) Rivers.

(b) Lakes.

(c) Railroads.

Special assignments

A visit to a meat-packing plant. (7-2512-13.) The stock yards.

(9-3207-09; 17-6044.) Story of a steamer and its cargo on the Great Lakes. A Kansas Wheat Field. (15-5278.) The Steel Mills at Gary. (17-6038.) Copper Mining near Lake Superior. (17-6038.) The Making of an Automobile. (19-7015-32.) Up-to-date farming machinery. (19-7209-11.)

(c) The Southern States. (13-4517-28; 14-4889-4900.)

What railroads carry us to the South? From New York City? From Chicago? From San Francisco? To what places in the South do northerners go in winter time? Find these on the map. (10-3400.) *Climate and surface* of the Southern States. *Drainage*. The Mississippi (16-5653-60); deltas (7-2537).

1. Products. What crops do we find in the South that are new to us? Why was cotton called king? Look up the story. What invention helped to make cotton king? (6-1912; 19-7205.) Make a map showing cotton production. (8-2678, 2782; 9-3214; 14-5167-76.) What other new crops do we see? Where is the rice section? (5-1854-55.) The sugar? Does the South raise enough sugar for the United States? What fruits do we get from the South? (8-2680; 6-2064.) How are they shipped to us?

2. What race makes up a great part of the population of the South? What part has it taken in developing the South? Read the story of the Civil War. (7-2427-44.)

QUESTIONS

its beginning to the present. Name four products obtained from cattle. (4-1259-64.) What is a silo? (7-2413.) Why is it useful? What resources are necessary to the steel industry? (6-1935-54.) Write a paragraph on Gary and Pittsburgh. Name the different kinds of coal of which you have studied. (3-785-802.) Where are they found? (11-3773; 13-4526; 17-6040.) What differences in their uses?

Make an outline drawing of the Southern States. (10-3400; 13-4517-28; 14-4889-4900.) Fill in the *chief cities, surface features* and *products*. What advantages has the South over the North in agriculture? What kinds of lumber does the South send to us? What are levees? (16-5654-60.) Where do we find them? Name four crops of the South not grown in the North.

COURSE OF STUDY

COURSE OF STUDY

The New South.
Agriculture.
Manufacturing.
The Lumber industry.
Cities.

- (a) Savannah. (See Index.)
- (b) New Orleans. (See Index.)
- (c) Richmond.
- (d) Mobile.
- (e) Tampa.

Problem

Why did the South develop as an agricultural section instead of as a manufacturing one? (Before the Civil War.) Why is it *now* developing its industrial resources? (14-4889.) Transportation in the South. The rivers—the railroads. Which is now used more?

Special topics

The hill dwellers of the South. The cotton-gin. Life on a small farm in the South. Steamboating on the Mississippi. (16-5633-60.) Sugar raising (cane). (10-3415-24.) Sugar raising (beet). The story of slavery in the United States. (2-546; 5-1627; 6-1912, 1914.)

- (d) The Western States. (18-6425-36; 19-6841-50.)

Make an outline map of the United States. (10-3400.) Indicate the section covered by the Western States. (18-6425-36; 19-6841-50.) Put in railroad routes by which we might reach the West, from New York, from New Orleans, from Montreal. Make a relief map of the Western group. Indicate rivers. Why are they so important to the West? Read about irrigation. (7-2543-55.) How is it carried on?

1. Climate—Rainfall. What great resources and advantages has the West? What difficulties has it to overcome in some sections? The grazing lands. (8-2808, 2811.) What flocks and herds do we see on them?
2. Mineral resources. What are they? Name a great mining city.
3. Other important products.

QUESTIONS

Describe the chief occupations of Texas. Why is drainage important to New Orleans? (16-5660.) With what city in the South do we associate cotton? Compare a plantation in Virginia with one in Louisiana. Discuss crops, methods of farming. Compare a farm in New York with one in Virginia (eastern part). What city is called the Pittsburgh of the South? Why? (Birmingham, Ala., 13-4526.) What are naval stores? (14-4892.) Why do we no longer get them in large quantities from the Carolinas? Compare crops of sixty years ago in the South with those of to-day.

Western States. (18-6425-36; 19-6841-50.) Name 3 mountain ranges in the western part of our country. What fertile valley do we find in California? Name some products raised there. What is the Continental Divide? Where is it? On what railroads do we cross it? Why is reforestation a serious problem? (8-2805.) Describe a journey from Chicago to San Francisco, making a stop over at the Grand Canyon. (7-2281-85.) Make a map of your route, showing any changes you must make. Write up a diary describing the places, scenery, people, occupations you see on the way. (Get R.R. folders for this work.) What is irrigation? Describe an irrigated farm. Why is irrigation an important thing to the Western States? (7-2544-46.) Why is the Great American Desert disappearing? How? (9-3025.) What is a "dry farmer"? (18-6432.) What is alfalfa? (7-2412; 15-5279.) Sorghum? (10-3420.) Where are they most grown? Why? Describe the fruits grown in California. (6-2056-64; 8-2680; map, 19-7247.) In Oregon? Compare the

COURSE OF STUDY

- Lumber. Locate chief forests. (8-2803-12; 16-5985-96.) Where are the big trees? (12-4245-60.)
 Salmon (15-5636)—Portland.
 Fruit—California and Oregon. (6-2056-64.)
 4. The Southwest. Grand Canyon of the Colorado.
 5. National Parks of the West. (7-2281-91.)
 6. Cities.
 San Francisco.
 Salt Lake City.
 Portland.
 Los Angeles.
 Denver.

(See entry in Index under name of each city.)

7. Transportation.

Special Topics

- Discovery of gold—"Fortyniners." (6-1922; 18-6430; 19-6848.) The Pony Express. (18-6432.) Building of the Union Pacific R.R. (18-6432.) The Spanish Missions. (18-6826, 6829.) "El Camino Real." Settlement of Utah. (18-6430.) Annexation of Texas and of California. (6-1916-22.) Indians of the Northwest. (1-161-65; 19-7235-44.) The Buffalo. (1-159; 4-1263-65.) Yellowstone Park. (2-729-33.)

QUESTIONS

population of Arizona with that of New York. How can you explain this difference? By what routes and means is fruit shipped from California to New York City? Which fruits are more perishable? How are these handled? (2-535; 5-1607.) Great numbers of cattle are raised in the West. (4-1259-64.) Trace the story of their journey to you. In what forms do they come to you? (7-2512-13; 9-3207.) Describe a gold mine. (7-2588; 10-3584; 18-6430; 19-6843.) Do you know more than one way of mining gold? What are they?

THINGS TO DO (GEOGRAPHY, 5TH GRADE)

1. Keep a geography scrap book as you did in the 4th grade.
2. Fill in pictures, outline maps, and accounts of each topic which you study.
3. Write to the steamship and railroad companies for circulars and material. Many of the great manufacturing concerns will send you advertising material you can use.
4. Make a map showing the location and amount of the corn crops of the U. S. Wheat crops of the U. S. (distinguish between winter and spring wheat). Cattle production of the U. S. Hog production of the U. S.
5. Make a graph showing the amount of each of these crops raised by the U. S. and countries of the British Empire and South America.
6. Words you should know: agriculture, industrial, productive, indispensable, essential, irrigation.
7. Make a careful study of your *own* state. Its (1) Location; (2) Surface; (3) Climate; (4) Resources or (5) Advantages; (6) Handicaps; (7) Products and occupations; (8) Cities; (9) Transportation.

TESTS (GEOGRAPHY, 5TH GRADE)

Check what you have learned. Can you pass this examination? You should be able to answer three-fourths of the questions correctly.

FALSE-TRUE

If you think the statement is correct, mark it with a plus (+).
If you think the statement is false, mark it with a minus (-).

1. The United States raises enough of all crops to supply its population.
2. The tobacco crop exhausts the land rapidly.
3. There is much dairying in the Northeastern States.
4. Very little manufacturing is now carried on in the South.
5. The shipper is not an essential worker.
6. New York City owes much of its growth to the Mohawk Valley.
7. Short, swift rivers are good for furnishing water power.
8. The llanos is a long-haired mountain sheep.
9. The western coast of North America has many good harbors.
10. The United States imports sugar from Cuba.

COMPLETION

Fill in the blank spaces in these statements with the correct answers.

1. Dry farming is carried on by
2. Resources that help farmers are (name 3), and
3. The presence of deposits is helpful to manufacturing.

TESTS

4. Winter wheat is chiefly raised in , spring wheat in
5. Transportation facilities are
6. Cotton is raised in , shipped and made into
(what?) (where?).
7. Fruits raised in Florida and shipped are , ,
and,
8. The coast of North America has few good harbors.
9. South America ships , and to the United States.
10. and are important crops of both North and South America.

JUDGMENT

Cross out any words that do not belong in these statements. If the statements are correct, leave them as they are.

1. South America has rich deposits of nitrate, copper, silver and coal.
2. The chief occupations of Canada are agriculture, lumbering, fishing and manufacturing.
3. Dependencies of the United States are Alaska, Hawaiian Islands, Virgin Islands and Cuba.
4. Important minerals found in the Southern States are coal, oil, iron ore and copper.
5. Important crops of the states farthest south are corn, cotton and sugar-cane.
6. Chicago owes its growth to its excellent location, transportation facilities, good harbor, rich hinterland and climate.
7. Climate is affected by surface, surrounding waters, locations, industries and altitude.
8. Great natural advantages of Alaska are her mineral resources, rainfall, climate, fisheries and forests.
9. Mexico has excellent mineral resources, a good variety of climate, excellent transportation facilities and good schools.
10. The Western States are noted for mining, manufacturing, agriculture and trade.

GEOGRAPHY, 6TH GRADE

Average Age, 11 to 12½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. EUROPE.

Stand on the pier and watch that incoming liner. Her decks are filled with immigrants coming to make the United States their home. From what countries do they come? (Look up the quota figures for this year.) A great part of them come from the continent of Europe. (In the fourth grade you learned something of the *homes* of Europe. Review them.)

Which continent do you think is more thickly populated, your own or Europe? Look up the population of the United States, Canada and Mexico. Add these figures. Now find the population of Great Britain, Italy, Poland, Austria, Germany, France and Russia.

Find out the average day's wages of a working man in this country. Now find how much the same kind of worker might earn in Europe. (19-7214.)

What great disturbances and troubles have the people of Europe suffered within the past fifteen years? (18-6457-63.) Now do you begin to see what some of their reasons for coming to America may be?

Take out the physical map of Europe, and the world map. (1-44-45.) Consider Europe's *location*. Is its latitude one that is favorable for working and crop raising? Look carefully at the surface divisions as shown on the physical map. Do you see any features of this physical map that may explain the many different countries?

2. SOUTHERN EUROPE.

Portugal, Spain, Southern France, Italy, Greece, the Mediterranean. Let us take ship at *Lisbon*. Spain and Portugal were once more powerful sea-ruling nations than is England to-day. What happened? (14-5039-46, 5183-88.)

QUESTIONS

Give the nationalities that stood highest in the quota figures for last year. What are some reasons which cause people to immigrate to this country? Compare the number of countries in Europe with the number found in North America. What is a possible explanation of this difference? (See Index under Europe and North America.) From your study of your own country's products and occupations and from the physical map of Europe, what occupations would you predict for the different sections? Make a product map in this way, put it away until you have finished the study of this continent by sections, then see how nearly right you were. Remember that *climate* has a great influence here. What natural advantages has Europe? Name the principal surface divisions of Europe. What countries fall within those divisions? (See Index under Europe.) Is the latitude of Europe favorable for crop raising? Give reasons for your answer.

What advantages for trade are possessed by the countries of southern Europe? (13-4565.) What is a volcano? What influence would one tend to have upon the near-by countryside? (7-2313-14.) Where are the Pyrenees? (14-5040-41.) What cargo came aboard at Lisbon? (14-5188.) Through what strait do we sail as we enter the Med-

COURSE OF STUDY

We sail around the coast of Spain to Barcelona. (14-5039-53.) Here many of the company go ashore to see a bull fight. (See Index under Bull fight.) Compare Spain and California in climate, products, transportation, government. Let us visit the Alhambra. (15-5466-68, 5473-76.) The Alcazar. (9-3356.) On our inland journey we will stop to inspect a cork forest.

Find out how elevation, nearness to the sea, mountain wall, and latitude affect Spain's climate.

Model the Iberian Peninsula in clay or sand. (Map, 14-5041.)

Returning to our ship, we go on to Marseilles. A great load of silk is carried aboard here. Study the silk industry of France. Look up the story of silk. (15-5307-21.)

Passing on toward Italy we glimpse the island of Corsica, and do not stop until we reach *Naples*. Mt. Vesuvius is a point which we must visit. (13-4568; 7-2313.) It is only one of many places we should see in the vicinity of Naples, but we must go on to Rome and Venice. (4-1455-68.) Look up their history. (4-1191-1208; 17-6297-6311.)

What advantages has nature given Italy? (Climate, water power, and location which is excellent for trade.) (13-4565-76.) What disadvantages do we note?

Occupations of Italy

How does the Italian farmer earn his living? The silk industry in Italy. Government. (13-4565-76.)

Greece. (14-4917-19.)

3. WESTERN EUROPE.

(a) BRITISH ISLES.

In the fourth grade you learned about island dwellers. Here are some island dwellers who have become a strong and powerful nation.

Location. (Disadvantage or Advantage. Give reasons.)

Climate.

People of the British Isles

1. *The farmer* in England, Ireland, Wales and Scotland.

QUESTIONS

iterranean? Describe the sights we see. Of what nations does Gibraltar make us think? (9-3181-82, 3187.) Why? How do you account for Spain's decline in power and greatness? (14-5046-48.) Describe the people who came aboard at Lisbon. (14-5188.) Malaga grapes come packed in ground cork. (6-2062; 14-5048.) Tell the story of the grapes and their packing. Compare Spain and California in products. (6-2057, 2058, 2062, 2064; 14-5048-53.) Describe a visit to the Alhambra. (15-5466-68, 5473-76.) Where is cork obtained? Give at least three of its uses. (See Index under Cork.) What factors influence Spain's climate? (14-5039-40.) What countries make up the Iberian Peninsula? (14-5040-41.) For what are Marseilles and Lyons chiefly noted? (11-3818-20.) Tell the complete story of a silk dress imported to the United States from France. (15-5307-21.) With what famous man do we connect the island of Corsica? (11-3820.) Why do Italians say "See Naples and then die"? (13-4566.) Describe some of the famous sights of Rome. (17-6302-08; 4-1201-08.) What debt in art and literature do we owe to Italy and Greece? (13-4566-74. Art: 2-447-51, 575-82, 691-99; 3-823-31; 5-1735-48; 3-957-64; 3-1103-12; 4-1455-68. Literature: 16-5747, 5907; 17-6149.) What city was called Queen of the Adriatic? (4-1455.) What unusual features do we notice in this city? (4-1455-68.) What handicaps has Italy? (13-4568-72.) What great *trade* advantage has Italy? (13-4565.) Where are Italy's foreign possessions? (18-6811.) What crops are raised on the Italian farms? (13-4570.) What helpful work is done by the rivers of Italy? (13-4568, 4572.) Is there much or little mining? (13-4572.) What are Italy's imports to the United States? (6-2058.) Which of these do we find on our dinner tables? Are any of these things raised in our own country? Where?

BRITISH ISLES. Why is it said that England's very life is bound up in her trade? What advantages does England's location and coast line give her? Why is there excellent pasturage in Great Britain? What occupations does this indicate? (15-5576.) What cargoes must Great Britain import? What ones does she export? Compare an English farm with one in Indiana. Where is wheat grown? Oats? Flax? What textile industries are carried on in Great Britain? (14-5244-45.) In what localities?

COURSE OF STUDY

COURSE OF STUDY

2. The city-dweller in London, Glasgow, Belfast, Birmingham.
3. The miners. (What? Where?)
4. The coast-dwellers.

Shipping. Transportation — within and without the kingdom. Read the story of English history. (British Isles, 4-1315-24; 4-1429-39; 5-1565-72; 5-1679-86; 5-1813-20; 14-4959-71; 6-1973-81; 6-1976-78; 11-3846-52; 6-2097-2103; 7-2293-2300; 8-2932-40.)

(b) NORTHERN FRANCE.

The French people, makers of beautiful, artistic products. The country dwellers. The French farm. The city dwellers—manufactures. Location of France. Advantage? How? Resources. (11-3813-22; 10-3430; 11-3825-28; 17-6168-70.)

Paris. Read all you can about this beautiful city. Read something of the history of France. Joan of Arc. (10-3429-40; 6-2127-34; 10-3563-72; 6-2199-2208.)

Transportation.

Government.

(c) GERMANY. (12-4160-80.)

Life in Germany.

Germany was formed from many separate states. (11-3959-74.)

Life in Prussia.

Life in Bavaria.

Germany of to-day. The new republic.

Climate.

Resources and advantages.

Disadvantages. How overcome?

Transportation—Railroads, canals, seaports, the Berlin to Bagdad Railway.

The farmer.

The manufacturer.

Look up Denmark and Hans Christian Andersen. (15-5296-98; 9-3194-96; 5-1576.)

(d) BELGIUM. (15-5495-5506.)

1. Farming, crops.
2. Manufacturing. (Lace making, carpet making.)

QUESTIONS

What are the great steel cities? What and where are the British possessions? (7-2463, 2571; 8-2695, 2821; 9-3047, 3181, 3295.) Compare the government of Great Britain (6-2097-98; 7-2298) with that of your own country (5-1787-93). Give two reasons for the growth of London. (12-4353.)

Why do so many tourists visit France? (11-3813.) Why is there so much difference between the climate of France and that of Winnipeg, which is in the same latitude? (11-3814.) Why is the Saar basin important? (11-3818.) What is meant by the saying that we import chiefly luxuries from France? (11-3818.) Name three of the luxuries that we import. (11-3818-20.) Compare a French farm with one in Kansas. Describe the crops. What things have the people of France done to utilize the resources of their country to the best advantage? (Canal system, 11-3816.) Compare the government of France with that of your own country. (11-3822-23; 5-1787-93.)

GERMANY. (12-4160-80.) Why has Germany so many famous cities? (Connect this with the founding of the German Empire. 11-3963.) Describe the present government of Germany. Name two great natural advantages possessed by Germany. (12-4161-62.) What great handicap was overcome by the activity of the government? (The answer concerns soil. 12-4164.) What has chemical research done for Germany? Germany's route to the East was the Berlin to Bagdad Railway. What is England's route? (9-3181-82.) What important crop of Germany is an important crop of the United States? (Rye, 12-4166.) What manufactures carry the mark "Made in Germany"? Name at least three. (12-4168-70.)

BELGIUM. (15-5495-5506.) What are the products of Belgium? Why is Antwerp called a man-made port? What things show the Belgians to be industrious and home-loving?

COURSE OF STUDY

QUESTIONS

- (e) SWITZERLAND. (16-5997-6010; 17-6083-89.)
 1. Her surface, climate, government.
 2. Her neutrality. Why?

- (f) HOLLAND. (15-5555-68.)
 The Dutch people and their home, reclaimed from the sea. Canals. Windmills.

Occupations

1. Farming.
2. Dairying.
3. Shipping.
4. Manufacturing.
5. Diamond-cutting.

The tulip gardens.
 Holland's colonial possessions.

4. NORTHWESTERN EUROPE. (15-5291-5306.)
 (a) NORWAY. (15-5298-5303.)
 rugged land—fiords, fish, forests.
 1. Small farms.
 2. Dairying.
 (b) SWEDEN. (15-5304-06.)
 1. Forests—Lumbering—Matches.
 2. Farming (in the south).
 3. Fishing.
 4. Winter sports.
 (c) DENMARK. (15-5296-98.)
 (d) Look up the Laps. (15-5304.)

5. EASTERN EUROPE.
 Esthonia (16-5860), Latvia (16-5860), Lithuania (16-5860), Poland (13-4685-92), Russia (16-5691-96; 16-5847-59), Ukraine (16-5850), Finland (16-5859).
 The recent political readjustments undergone by these countries. Find an old map of Europe (one published before the World War) and compare it with the present map.
 Products, customs, government.

6. CENTRAL EUROPE.
 Austria (17-6191-98), Hungary (17-6339-42), Czechoslovakia (17-6340-44).
 (a) Climate.
 (b) Surface.
 (c) Occupations.
 (d) Transportation.
 (e) The readjustment period.

SWITZERLAND. (17-6083-89.) Why do so many tourists visit Switzerland?

HOLLAND. (15-5555-68.) Describe the sights you would see on a trip through Holland. Where and what are Holland's colonial possessions? What has Holland accomplished in governing Java?

What is meant by Norway's "white coal"? (15-5300.) What advantages does their location give to Norway and Sweden? (15-5298-5300.) Look at the map. (15-5301.) What occupations would you expect their people to follow? In which of these two countries are iron deposits found? (15-5304.) Which one has the greater amount of fishing? (15-5300.) What is meant by "Land of the Midnight Sun"? (15-5302.)

EASTERN EUROPE. Why are these countries often referred to as "new countries"? (18-6458.) Which ones have been made larger? (18-6460.) Poland. Finland. (18-6461.) What industries in this section are coming rapidly into prominence? (16-5860.) What important crop has Russia which is also an important crop in the United States? (16-5854.) What valuable mineral resources has Russia? (16-5854.) What handicaps has this section? (17-6196, 6198, 6340, 6348.)

What important crops are raised in this section? (17-6344, 6346, 6348.) What manufactured goods are produced in these countries? (17-6344-46.) What great hardships have these countries recently undergone? (17-6196-98.)

COURSE OF STUDY

QUESTIONS

7. THE BALKAN SECTION.

Rumania (14-4918-22), Bulgaria (14-4922-26), Turkey in Europe (13-4797-4806).

Use map of the world. (1-44-45.)

The importance of the Balkans to the rest of Europe. Surface. Climate. Occupations. Recent readjustments in government.

(a) Constantinople.

(b) Saloniki.

8. ASIA—The land of many different peoples.

Use your map of the world. (1-44-45.)

Location of Asia.

Location of Asia in relation to North America. Trade routes.

Note that Europe and Asia are really one land mass, called *Eurasia*.

Take out your physical map of Asia.

Study the principal surface features.

Compare Asia with Europe.

Climate. Note effect of the *monsoon*.

Drainage. Chief rivers.

(a) The Southern Peninsulas. Arabian, Indian, Malay.

1. Countries or parts of countries concerned.

2. Climate.

3. Life of inhabitants as influenced by physical conditions. Customs and people. Government.

4. Important products. Tea, dates, coffee, rice, opium.

5. Important cities.

Look up the history in connection with Damascus. (18-6678.) With Jerusalem. (2-659; 5-1863; 7-2586-89; 19-7158.)

Read all you can concerning the Suez Canal. (13-4784, 4786-91.)

Java. (15-5568.)

Ceylon. (9-3184; 4-1409; 5-1857.)

Sumatra. What products?

The story of tea (2-760-71), of jute

THE BALKAN SECTION. From what country does each one of these exports come: Currants? (6-2062.) Attar of roses? (13-4806; 14-4926.) (For what is this used?) Fine rugs? (8-2698; 3-910.) Pottery? (2-434, 572.) Embroidery? (2-421.) Why does the League of Nations spend so much time on Balkan problems? (13-4797-4806.) Why is Constantinople so important a city? (13-4806-09.) On what body of water does it stand? What changes are taking place in the life and government of Turkey? (13-4806.) How do the people in this section earn their living? (13-4806.)

ASIA. Describe two routes by which you might travel to Asia. Trace these routes on outline maps. (9-3181-82; 16-5852; 2-434; 16-5848.) Make a list of the waters through which you would be obliged to pass. (9-3181.) List all possible stopping-places or "ports of call." What is meant by "Eurasia"? What surface features of Europe continue on into Asia? Which countries in Europe are in these regions? Which countries in Asia? Which parts of North America and Asia are very near together? What are tundras? (6-2170; 4-1280.) Steppes? (6-2171; 4-1281.) Deserts? (7-2416-17, 2421.) Where are they found? What people inhabit them? (18-6674, 6735-43; 9-3025; 7-2468; 8-2666-67; 6-2170-71; 7-2416-17, 2421.) Where are the principal forests of Asia? (16-5847.)

Through what waters would a vessel pass in making a voyage from Aden to Shanghai? (9-3182, 3184, 3186.) What cargo might it carry? What products might it take on at Bombay? (8-2698.) At Calcutta? (8-2698.) At Singapore? (9-3184.) What country governs India? Compare India with the United States in population (8-2695) and size. What mountains between India and China? (8-2694.) What peak of those mountains has been prominent in the news during the past few years? (8-2695.) Why? What authors have written stories and poems of India? (15-5461; 11-3899.) Who are the Hindus? Mohammedans? (8-2700-02.) Why has Bombay become so important a city? (8-2698.) What are "castes"? (8-2700.) What do we mean by the "caste system"? Why have famines been so frequent in India? Why have they grown less so? (7-2544.) Describe two novel methods of transportation which are much in favor in India. From what coun-

COURSE OF STUDY

(8-2788; 11-3792), of dates (6-2157-58), of rice (5-1623, 1854, 1856; 7-2424) and teakwood (12-4249).

Look up the subject of the valley of the Euphrates. (18-6669-72; 2-647-60.)

What is a mandate? What country holds a mandate in Mesopotamia? (18-6669.)

People, buildings, streets, customs, all are very different from our own. Find as many pictures of Indian, Arabian and Malay life as you can, and observe them carefully until you have a picture of these new scenes in your own mind. (8-2695-2702; 8-2821-36; 18-6671-73; 9-3184.)

Special topics

The Taj Mahal. (8-2701, 2835; 15-5471-72, 5477.)

Life in Arabia. (5-1601-03; 18-6735-40.)

The banks of the Ganges. (8-2699.)

A teak forest. (12-4249.)

A tea plantation. (2-760-62; 8-3000.)

(b) Eastern plains and islands of Asia.

CHINA. (2-421-36.)

See that large package with its bright wrapping and quaint lettering. It has come all the way from China, and it is tea of the finest quality.

1. Life in China.
2. Dense population.
3. Surface—rivers.
4. Occupations. Farming in China.
5. Transportation.
6. Products, especially those imported to the United States.
7. Cities, People, Customs, Government.

Special topics

The Chinese Wall. (2-424, 429, 435.)

Ancestor worship. (2-436.)

Farming in China. (5-1854-56.)

Beautiful things made by the Chinese. Chinese Art. (5-1664; 15-5472-79; 9-3094-95.)

Chinese schools. (5-1605.)

A rice field. (5-1853-56.)

The Philippines. (10-3588-90.)

Tibet, Turkestan, Mongolia, Afghanistan. (18-6583-92.)

QUESTIONS

tries do we get the following products? Rubber. (4-1408.) Quinine. (8-2909-10.) Tin. (7-2470.) Coffee. (6-2177.)

Eastern plains and islands of Asia. What do we mean when we speak of the "dense population of China"? (2-421-22.) What river is called the "sorrow of China"? Why? (2-422.) Describe the sights we might see on a trip up the Yangtse River. (2-422.) Describe farming as carried on in China. What and where are the following: Gobi? (7-2421; 6-2170.) Tibet? (18-6584; 6590-91.) Mongolia? (18-6584.) Canton? (2-436.) Hongkong? (2-436.) What two things form the chief diet of the greater part of the Chinese people? What imports does the United States receive from China? (2-434.) What governmental disturbances have affected China during the past few years? (2-436.) Describe the Chinese dress (old style), houses, religion, homes, and ways of transportation. Why is China called a land rich in undeveloped resources?

COURSE OF STUDY

COURSE OF STUDY

JAPAN.

Why is Japan, though not a large country, so important? (2-561-74.) Comparison with British Isles, in area, location, climate. Population, industries and occupations. Exports. Study the silk industry in detail. Compare the silk industry in Japan with that of France. (15-5307-21.)

Outline for study lesson on silk

1. Where produced?
2. How produced?
3. How prepared for market?
4. Spinning and weaving.
5. Uses. Markets.

Special topics

Fujiyama. (7-2317.)

A Japanese home.

A Japanese meal at home.

Japanese art. (15-5472.)

Commodore Perry's visit to Japan. (2-564.)

- (c) The Northern Plains.
Life in Siberia. (16-5857.)
The Trans-Siberian Railroad.
(16-5852.)
People who live in Siberia.
Occupations. Crops.

Special topics

Exiles in Siberia. (16-5852.)
Reindeer.

9. AFRICA

South of Europe lies a great land, Africa. Take your world map and locate this continent with reference to Asia, North America and Australia. (1-44-45.) Surface. Model a relief map in clay. Forests, deserts, fertile valleys, mountain ranges.

- (a) Plant and animal life. Resources.
- (b) Inhabitants.
- (c) Exploration and settlement. (3-807-08; 13-4786; 1-360-67.)

Special topics

Egypt and the River Nile.
(7-2538.)

Compare the Suez and Panama Canals. (1-360-67; 13-4786.)

Sahara Desert. (7-2416-21; 18-6808-18; 18-6735-43.)

Diamonds. (19-7228.)

QUESTIONS

What rapid progress has recently been made in Japan in industry, commerce, government and education? (2-564-66.) We see many Japanese students at our large colleges. What do you think this indicates? Describe the old costumes and art of Japan. (2-572; 15-5472.) Tell the story of silk. (15-5307-21.) Describe the industries of the country dwellers. (2-572.) What products do they export to the United States? (2-572.) What are the two chief cities? (2-570-72.) Describe manufacturing in Japan.

To what country does Siberia belong? Describe the climate. What are the terminals of the Trans-Siberian Railroad? (16-5852.) What crops are raised in Siberia? What effect do you think the Trans-Siberian Railroad will have on life in Siberia?

AFRICA. (9-3047-58; 18-6804-14.) How might I reach Africa from New York? From San Francisco? Why was Africa so long called the "dark continent"? (2-465-71; 18-6804.) Why is Africa, with all her rich advantages, so sparsely settled? (9-3054.) Why are European nations so anxious to colonize Africa? (18-6811.) What nations own or control land in Africa? Locate these sections, describe them, and give their resources: Congo Free State. (18-6812.) Soudan. (9-3054.) South African Union. (9-3050.) What are the chief products of Africa? What are the principal needs of Africa to-day?

COURSE OF STUDY

QUESTIONS

The story of a caravan.
(18-6739, 6743; 5-1602.)

The Cape to Cairo Railroad.

Things to Do

Indicate on one outline map of Africa the nations that have colonized there.

10. AUSTRALIA. (7-2463-72.)
 Location of Australia.
 Climate, Resources, Industries.
 (4-1369; 6-2066-67.)
 Controlled by what nation?
 Plants and animals.
 Story of settlement. (3-859-64;
 7-2464-66.)
 Cities and harbors.
Special topics
 Sheep raising. (7-2462, 2466-
 68.)
 Gold mining. (7-2466.)
 Wheat growing.

AUSTRALIA. (7-2463-72.) Compare Australia with the United States in size, population and occupations. Compare the seasons in Australia with those in the United States. Why are the plants and animals different from those in the United States? How was Australia first settled? (3-859-64.) Trace the voyage of a ship from San Francisco to Sydney and return. Give the cargo in both directions.

11. NEW ZEALAND. (7-2571-81.)
 Important to Great Britain. Why?

NEW ZEALAND. (7-2571-81.) What are the chief resources of New Zealand?

TESTS (GEOGRAPHY, 6TH GRADE)

COMPLETION

Fill in the blank spaces in these statements with the correct answers.

1. The countries of Europe from which we receive the greatest number of immigrants are , , and
2. The principal surface divisions of Europe are , , ,
3. The gives the countries of Southern Europe great commercial advantages.
4. The latitude of Europe is favorable to and
5. Spain exports chiefly and
6. The countries of Central Europe are , and
7. In France the cities of and are noted for the silk industry.
8. Italy exports and to the United States.
9. The steel cities of England are and
10. The sugar beet region of Europe is located in

FALSE-TRUE

If you think the statement is correct, mark it with a plus (+).
If you think the statement is false, mark it with a minus (—).

1. The government of the British Isles is an absolute monarchy.
2. Great Britain has quantities of iron and coal.
3. Great Britain produces sufficient food for her population.
4. The soil of Germany is naturally poor.
5. The northern part of France has more factories than the southern.
6. The Germans are leading manufacturers of chemical dyes.
7. Switzerland has much coal but little water power.
8. There is much manufacturing in Belgium.
9. The leading occupation of Russia is manufacturing.
10. Turkey gained in territory as a result of the World War.

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. Jute, used in manufacturing woolen goods, is an important product of India.

TESTS

2. Irrigation is extensively used in Arabia, Ceylon, India, Japan.
3. Rubber is an important product of China, India, Turkey, the Malay States.
4. Standards of living are low in China because of (a) the size of the country, (b) the climate, (c) the unsettled government, (d) the dense population.
5. Africa has not been settled earlier because of (a) its size, (b) climate, (c) savage tribes, (d) high mountains, (e) difficulty of travel, (f) lack of natural resources.
6. The chief products of Africa are silk, silver, oats, wool, gold, ivory, cotton.
7. Which of the following are of great advantage to Africa? Give reasons for each answer. (a) Her coast line, (b) climate, (c) rivers, (d) minerals, (e) transportation, (f) progressive native people, (g) mountains.
8. Australia exports great quantities of cotton, rice, gold, wool, beet sugar, steel goods.
9. Draw a line under the product that belongs to the country given. New South Wales, sugar cane, teak, sheep, gold. Egypt, wheat, cork, corn, cotton, rubber.
10. Belgian Congo is important because of lumber, ostrich feathers, cork, rubber, wheat, corn.

GEOGRAPHY, 7TH GRADE

Average Age, 12 to 13½

COMMERCIAL GEOGRAPHY

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. INTRODUCTION.

Indian life before the white man came. How the Indian obtained his food, clothing, tools, weapons, cooking utensils, and his home. (1-160-65.)

Colonial and pioneer life. (2-543-55; 3-965-76.) How the colonist made his own home, clothing, food and furniture. Many steps in advance of Indian life, he still depended almost entirely upon his own efforts. Not quite entirely, for he must buy his gun, powder and shot, and many of his tools and utensils. In older, simpler days each man very nearly fed, clothed and housed himself and his family. As the business of living grows more and more complicated more and more hands are required to feed and clothe us. (14-5243-46; 15-5357-60.) On a typical dinner table would be a linen cloth and napkins, silver, china, roast beef, potatoes, beets, lettuce, cheese, rice pudding, coffee.

What is trade or commerce?

(15-5589-91.)

Trade in colonial times. (4-1157-58.)

2. OUR DEPENDENCE ON OTHERS.

Climate and location.

Soil and surface features.

The effect of these upon occupations.

Why it is not practicable for each country to grow all the things needed by its inhabitants.

3. SOME FACTORS THAT HAVE BROUGHT ABOUT MORE TRADE.

- (a) Increase in use of machinery.
(17-6362.)

QUESTIONS

Describe the Indian's home before the coming of the white man. (1-160-65.) By what processes did he obtain food? How did he preserve his food so that it would not spoil? Describe the way by which he clothed himself and his family. When he needed a new knife or axe, how did he get them?

Answer these questions for the colonist and the pioneer. (2-543-55; 3-965-76.) How was trading carried on? (5-1698-1700.) How many people fed and clothed the Indian? How many fed and clothed the colonist? Now try to count how many hands it requires to feed and clothe you. Compare the number required to feed and clothe a frontier family in colonial times with the number needed to feed and clothe your own family. Make a list of your articles of clothing and of the furnishings, cooking utensils and dishes of your own home. Put down next to each one the place from which it came. Be able to tell its story. How many of these things came from near by, how many from distant parts of your land or from far-away countries? Do the same thing for the food on your dinner table. Tell some of the kinds of trade that were carried on in colonial days.

Illustrate the ways in which we depend upon others. (14-5243-46; 15-5357-60.) Why does not each man raise his own food? Why does not each country grow enough of the necessities of life for its own people? (15-5589-91.) Illustrate your answer by England and the United States.

What is meant by the saying, "Distances are growing less every day"? What inventions cause distance to grow less?

COURSE OF STUDY

QUESTIONS

- (b) Improvement in transportation.
 - Railroads. (5-1610-18; 2-408-20.)
 - Sailing Vessels. (11-3909-20.)
 - Steamships. (17-6397-6408; 12-4414-33.)
 - Aircraft. (1-166-84.)
- (c) Improvement in means of communication.
 - Mail. (8-2653-62.)
 - Telegraph and Wireless. (17-6049-62, 6234-48.)
 - Telephone. (17-6182-89.)
 - Radio. (17-6363-73.)
- (d) Nations are growing nearer to each other.
- (e) Increase in population. (1-22, 42-48.)

The Early History of Trade

1. Early land routes (Marco Polo). (1-84-85.)
2. Early sea routes. (1-83-84; 11-3910-14.)
 - Mediterranean.
 - Greeks—Phœnicians.
3. Exploration. (1-86-90.)
 - Vasco da Gama.
 - Columbus.
 - Magellan.
4. Difficulties of trade (in olden times).
5. Growth of modern trade. (Helped by inventions.)

Name three great explorers and tell what their discoveries and explorations did for trade. (1-82-90.) What handicapped trade in olden times? What inventions first caused an increase in exploration and trade by water? (16-5797; 16-5984; 12-4421-22.)

4. TRADE IN THE ATLANTIC OCEAN.

- The Atlantic as a carrier of the trade of the United States.
- Size of the Atlantic.
- Distance from New York to Liverpool.
- Currents. Their influence on trade. (7-2543; 13-4826.)
 - Gulf Stream.
- Winds. (1-360-70; 13-4793.)
 - Prevailing Westerlies (3-878) and Trade Winds.
 - Special topic*
 - Panama Canal. (1-360-67.)

Name at least six great steamship lines between the United States and Europe. (12-4414, 4417.) Give the ports which they connect. What is a "port of call"? What important currents influence the Atlantic? (7-2542; 13-4826.) Make an outline map showing the courses followed by the principal steamship lines. (1-44-45.) Why are the wind currents less important in commerce than formerly? (11-3920; 17-6397.)

- Ports and Trade Routes.* (1-44-45.)
 - What constitutes a good port or harbor?
 - Important ports in the United States.

What things are needed for a seaport's growth besides a good natural harbor? Illustrate your answer from the City of New York. (12-4145-47.) What are the important ports of the United States on the Atlantic coast?

COURSE OF STUDY

COURSE OF STUDY

- Important ports in Canada, Europe, Africa, South America and the Caribbean.
- Trade Routes. Ocean Lanes.
Find the routes most used by the great freight and passenger steamers.
- Steamship Lines.
List as many of these as you can. Write the steamship companies for folders describing their routes.
- Cable Connections.
(12-4293-4300.)

5. TRADE IN THE PACIFIC OCEAN.

The Pacific as a carrier of United States trade.

Size.

Distance from San Francisco to Yokohama; to Sydney.

Islands.

Possessions of the United States.
Trade with them.

Currents.

Japan Current in North Pacific.
Eddy Current in South Pacific.
Effect of these currents on trade.

Winds.

Westerlies.
Trade Winds. (8-2666, 2672.)
Monsoons. (See Index.)
Typhoons. (See Index.)

Ports in:

North America (Western Coast).
Asia (Eastern Coast).
South America.
Australia.

Coaling stations. (10-3583-88, 3592.)
Commerce of:

India.
Malay States.

Australian ports and trade.

Commerce on western coast of South America. Ports.

The Panama Canal and its influence on commerce. (1-360-67.)

Why South American trade is important.

QUESTIONS

What port of Canada has important commercial connections with Europe? (Montreal. See Index.) Why may air currents again become important to commerce? (1-170.) What is meant by the "Northern Route"? (8-2978-89.) What are its dangers? What services does the United States government do for commerce? (5-1792.) What department carries on this service? Trace the important cable connections. (12-4297.) Explain how all these things "make the world grow smaller."

What are the chief products of the Hawaiian Islands? (15-5446-51.) What advantages does their location give these islands? Japan's trade with the United States. What effect had the adoption of Western standards on her imports? (2-564, 565, 572.)

Why are the winds of the Pacific so important to shipping? (8-2698.) What does the United States import from China? (2-421.) Why does not China have more trade with the United States? What needs of China might trade with the United States help to fill? What ports of Japan carry on the most commerce? (2-570.) Of China? (2-434, 436.) Where are the United States coaling stations in the Pacific? (10-3583-88, 3592.) What United States possessions lie in the Pacific? (10-3583.) What effect have these on trade? What relation has the Pacific to Alaska? (10-3584.) What has the automobile industry to do with trade with the Malay States? (4-1406-08.) What things does India chiefly export? (8-2698.) What is Australia's principal export? (7-2466.) From what ports is it shipped? (7-2466-68.) Name the three most important ports on the western coast of South America. (19-6856.) Trace a ship's voyage from San Francisco to these ports. Describe its cargo. What things would it carry back in return? (19-6980, 7038.) Why is trade with Chile important? What has it to do with farming in this country? (19-7038.)

COURSE OF STUDY

QUESTIONS

6. THE UNITED STATES—PRODUCT SECTIONS.

The United States a country rich in resources. The basis of our prosperity. (10-3397-3400.)

Crops.

Wheat. (15-5276-78; pictures, 1-374-78; 8-2678-79.)

The wheat belt.

Climatic conditions necessary for wheat-raising.

Sowing—Harvesting.

Milling cities.

Transportation.

Rail and water routes.

Railroad centres and ports.

Sending.

Receiving.

Other wheat-producing countries. (19-7247.)

Corn. (15-5280-84; 8-2678.)

The corn area. (Reasons for.)

Sowing and harvesting.

Hog-raising.

Transportation.

Special topics

Evolution of the plow. Inventions that aid farming. (15-5278-80; 19-7209-11; pictures, 1-374-75.)

Cattle. (4-1259-64; 9-3207-09, 3211.)

The cattle area. (18-6435; 15-5276-77; 13-4524.)

Extent.

Leading states.

Slaughtering centres. (19-7118.)

Meat preparation. (7-2512-13.)

Transportation.

Railroad centres and ports.

Sending.

Receiving.

By-products. (7-2512-13.)

Leather. (5-1549-58.)

Other cattle-producing countries. (19-7035; 4-1258-68.)

Connection with the shoe industry. (18-6445.)

Sheep-raising. (9-3208; 4-1369-78; 7-2462, 2466, 2468.)

The woolen industry. (15-5574-88.)

What are some of the natural resources of the United States? (10-3397-3400.) What conditions of the United States are favorable to wheat-raising? Corn-raising? (15-5274-84.) What climatic conditions must accompany a good wheat crop? A good corn crop? Where is the *winter wheat* section? (15-5278.) When is *winter wheat* sown? Locate the *spring wheat* section. (15-5278.) When is *spring wheat* sown? Contrast methods of plowing in the United States with methods in Mexico. What inventions make it possible to raise more wheat? (15-5278-80; pictures, 1-374-75; 19-7209-11.) What European countries take the greatest amount of our wheat crop? Which country takes the most? Why? How is wheat shipped abroad? Trace a shipment of wheat from the fields where it was grown to Liverpool.

What connection has corn-raising with hog-raising? (15-5282.) What is a threshing-machine? (Picture, 1-375.) A binder? (Picture, 1-374.) How much corn do we export? (15-5282.) Give reasons for your answer.

Locate the cattle area in the United States. (9-3207-08.) Where is the greatest amount of slaughtering done? (9-3209.) What are the meat-packing centres? (15-5276-77; 19-7118.) Name some of the by-products in the cattle industry. (7-2512-13.) What influence has the automobile industry on cattle-raising?

Why is it said that sheep will live where cattle would starve? (19-6842.) Why is the United States exporting less meat to Europe than formerly? (9-3207.)

COURSE OF STUDY

| COURSE OF STUDY | QUESTIONS |
|--|--|
| <p>Make a set of product maps. Show the wheat area on one, the corn belt on another, and so on.</p> | |
| <p>Fruit-raising. (6-2056-68; 8-2680.)</p> | <p>What have refrigerator cars done for fruit-raising? (2-528-35.)</p> |
| <p>Cotton. (14-5166-76.) Cotton states. Where raised? (8-2678; 5-1626; 8-2782-84.) Where woven into textiles? (9-3214.) Methods of picking and packing into bales. Transportation. <i>Special topics</i> The history of cotton. The cot- ton-gin. (6-1912; 14-5167.)</p> | <p>How did your cotton blouse get from the cotton plant to you? (14-5166-76.) Which is the leading cotton state? What are the chief uses of cotton? Where are cotton textiles made? (9-3214; 14-5168.) What are the ports from which most of our cotton is exported? What European ports receive most of the crop?</p> |
| <p>Sugar. (10-3415-24.) Cane sugar. Beet sugar. Areas. (7-2531-33.) Give reasons. Other sugar-raising countries. Ports from which sugar is sent to us.</p> | <p>Does the United States raise sufficient sugar for its own needs? (8-2680.) If not, from what countries do we import it and <i>how much</i> do we import? Give reasons for the beet and cane sugar areas. (7-2531-33.) What country developed the sugar-beet?</p> |
| <p>Fisheries. (11-4050-63; 9-3208.) Atlantic coast fisheries compared with those of Gulf and Pa- cific coasts. Methods of catching and drying. Canning centres. Transportation by rail and water. Fishing rights of nations. By-products. Other fish-producing countries.</p> | <p>What is the continental shelf? (See Index.) Why are fish found there? Describe the methods of catching and preserving salmon, cod and herring. (11-4050-63.) What uses other than eating are made of fish? Discuss the importance of fish as an export. Give reasons for your answer.</p> |
| <p>Lumber. (16-5985-96; 18-6428-29.) Where did the wood of which your desk is made come from? Leading lumber areas. (8-2680; 13-4524.) Lumbering. Saw-mill centres. Transportation. Uses. (7-2445-53; 8-2680.) Important timber trees. (12-4245-60.) The need for conservation. <i>Special topic</i> Forest rangers. (8-2803-12.)</p> | <p>Give the most important uses of lumber. Where are the most important lumbering areas? (8-2680; 10-3408; 13-4524.) Why are far-sighted people anxious that we conserve our forests? (12-4250.) What does the government do for the forests?</p> |

COURSE OF STUDY

QUESTIONS

Minerals:

- Coal. (3-785-802.)
 - States producing anthracite coal. (11-3773; 9-3210.)
 - States producing bituminous coal. (17-6040; 13-4526.)

- Iron. (6-1934-54.)
 - Iron ore area. (6-1934, 1936, 1938; 9-3208.)
 - Transportation. (Stress importance of Great Lakes.) (6-1955-63, 1937.)

- Oil. (13-4535-52.)
 - Oil area (Petroleum). (13-4538.)
 - Influence of presence of coal and iron on industry. (6-1936-38; 3-788.)
 - Special topics*
 - The Soo Canal. (6-1956.) How coal was formed. (3-785-87.)
 - By-products of coal. (3-794.)
 - How oil was discovered. (13-4533-35.) Drilling for oil. (13-4540-49.)
 - Other countries with large oil deposits. (13-4538.)

- Copper. (9-3208; 17-6038.)
 - Where found?
 - Why important?
 - How refined and where? (9-3215.)

- Gold and Silver. (9-3208, 3210.)
 - Uses. (18-6549, 6550; 16-5680.)
 - Mining. Different methods used. (19-6843; 16-5790.)
 - Other gold and silver producing countries. (9-3208, 3210; 7-2466-70, 2576.) See Index under Gold and Silver for other references.)
 - Special topic*
 - Discovery of gold in California and the settling of the West. (6-1922; 18-6430.)

Manufactured Products:

1. Machinery. (17-6362.)
2. Automobiles. (19-7015-23.)
 - Centres of industry. (9-3214-16; 17-6041-42.)
 - Countries to which we export.

Why is Pittsburgh a great industrial centre? (6-1936, 1938; 11-3777.) Why is Birmingham called the "Pittsburgh of the South"? (13-4526.) Which is cheaper, to bring coal to the iron section or to carry iron to the coal section? (6-1936-38.) Why must we do either? How does the United States compare with Great Britain with regard to the amount of coal mined each year? (10-3399.) Why is oil important? Name the different ways of transporting oil. (13-4536, 4537, 4551, 4552.) What is coke? (3-788; 6-1936-38.) Why have the nations of the world become so interested in oil? What relation is there between the automobile and the oil supply? Will oil ever take the place of coal? (13-4539.)

Why is copper important? (9-3208.) Where are the copper regions of the United States? In what sections is copper refined and smelted? (9-3215.) Why?

Why are gold and silver used for money? (16-5680.) Describe different methods of gold mining. Where are some mining towns deserted although there is still gold-bearing ore present? Where do gold and silver rank in importance as products? (9-3208, 3210.)

What is meant by the saying, "The American tractor goes around the world"? (19-7209-11.) Name some of the types of machinery exported by the United States. Where are these made? Why? Why does not the United States produce its own raw

COURSE OF STUDY

| COURSE OF STUDY | QUESTIONS |
|--|---|
| Some things for which we are dependent on other countries: | |
| Rubber. (4-1405-14.) | silk? (15-5308.) In what section are the great silk mills? (9-3214-16.) Who uses the silk woven in the United States? Is any of it exported? Why is this? What is artificial silk? (15-5310; 13-4828.) Compare the silk made in the United States with that made in Europe. |
| Tea. (2-760-72.) | |
| Coffee. (6-2177-84.) | |
| Drugs. (8-2909-13.) | |
| Dye-woods. (9-3152-54.) | |
| Raw silk. (15-5307-09.) | |

Questions for Class Discussion

- Is it possible for the United States to remain isolated from other countries?
In what ways are we affected by conditions in other countries?
What effect has the building of canals and railways upon the commerce of the country?
Should the United States relinquish all claim to the Philippines? (10-3588-90.)

TESTS (COMMERCIAL GEOGRAPHY, 7TH GRADE)

COMPLETION

Can you pass this examination? See how many questions you can answer without help of any kind. Fill in the blank spaces with the correct answers.

1. Coal is important because depends upon it.
2. The use of electricity has increased the demand for (a mineral).
3. and supply most of the world's iron goods.
4. The growth of the Middle West was hastened by the building of and
5. Spring wheat is grown in the section; winter wheat in the part of the United States.
6. is an important crop of the Central South.
7. Cane sugar refineries are located on the because
8. and are noted for flour milling.
9. New England manufactures chiefly and
10. The automobile industry has increased the importance of, and

FALSE-TRUE

If you consider the statement correct, mark it with a plus (+).
If you consider it incorrect mark it with a minus (—).

1. The United States produces only one-third of the world's supply of copper.
2. Next to South America, Asia is North America's nearest neighbor.
3. The United States must import large quantities of wool.
4. Corn is not exported in large quantities.
5. Milling is an important industry of Kansas City.
6. River transportation was formerly of more importance than at present.
7. Cincinnati is famous for its great steel mills.
8. The United States raises sufficient sugar for its own consumption.
9. Russia must import great quantities of grain and machinery.
10. The United States produces enough coffee for its own consumption.

COURSE OF STUDY

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. The colonists manufactured (a) both cotton and woolen goods, (b) woolen goods only, (c) cotton goods only.
2. Raw silk is not produced in the United States because (a) the climate is unfavorable for it, (b) labor is too costly, (c) we have no food for the silkworms.
3. South America produces (a) more rubber than any other country, (b) less rubber than any other country, (c) an equal amount of rubber with the Malay States.
4. Atlanta, St. Louis, Pittsburgh, Galveston, Detroit, New Orleans and Birmingham are important cotton-spinning centres.
5. The United States ranks first, second, third in oil production of the world.
6. Tanneries (a) were formerly always located near forests, (b) must still be located near forests, (c) no longer depend on forests.
7. Give reasons for your answer to No. 6.
8. China's chief products are manufactured silk, embroideries, carvings, tea, railroad equipment, tin, sugar.
9. New England turned from agriculture to manufacturing because of her poor soil, good native water power and coal deposits.
10. Brazil produces about $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ of the amount of coffee used in the world. Draw a circle around the fraction which is nearest the correct answer.

GEOGRAPHY, 8TH GRADE

Average Age, 13 to 14½

PHYSICAL GEOGRAPHY

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. THE EARTH AS A PLANET. (1-17-25.)
Do you know that this earth on which we live is called a planet?
The 8 large planets and 500 smaller bodies all revolving about the sun are called the Solar System.
2. SIZE OF THE EARTH. (1-43-48.)
Size in comparison with other planets. (9-3178-80.)
Relative amounts of land and water. (1-44-45.)
Distance from the sun and other planets. (Color plate, 1-16.)
3. SHAPE OF THE EARTH. (1-22; 7-2603.)
Proofs. (Be able to give at least *five*.)
Beliefs of the ancients. (1-22, 83.)
Some navigators who discovered the true shape of the earth. (1-83-90.)
4. MOTIONS OF THE EARTH. (1-235-39.)
Effects of *rotation*.
Axis, Poles, Equator.
Revolution. Its effects.
Time of these movements.
5. THE SEASONS.
Causes of change of season.
Be able to explain and illustrate by diagram, Spring, Summer, Winter, Autumn, Equinox and Solstice. (1-18-19.)

QUESTIONS

- Are there any other planets besides the earth? (9-3178-80, 3289-93; 10-3409-14.) Name them. How did these planets get their names? Can you see them? (Maps, 1-23, 25.) How did the Solar System come into existence? (1-141-44.) What theories are given to explain the coming into being of the Solar System? What is an orbit? (9-3180.) Make a drawing showing the planets and their orbits in the Solar System. (Maps, 1-18-19, 23; 9-3290; 10-3414.) What amount of the earth's surface is land? What amount is water? (6-2169-70.)
- What is the circumference of the earth? The diameter? (1-43; 2-385; 9-3171.)
- What is the earth's distance from the sun? (9-3180.) What do we get from the sun? (9-3178.) How does the *amount* of sun influence man's ways of living? (8-2663-68; 2791-94.) Illustrate your answer by at least three different types of countries.
- Give five proofs of the shape of the earth. (1-22; 7-2603.) What did the ancients believe concerning the shape of the earth? (1-22, 83.) Name some navigators who proved that the earth was spherical in shape. (1-83-90.)
- Does the earth move? (1-18-19, 24, 235-39; 15-5517.) How many motions has it? What do we mean by *rotation*? What are its effects? Define axis, poles, equator. What is revolution? Give the time required by these movements.
- What causes change of seasons? Give three causes. (8-2663-68, 2791-94.) Draw a diagram showing positions of the earth and the sun's rays during Spring, Summer, Autumn and Winter. When is the North Pole turned toward the sun? (1-18-19.) Where does

COURSE OF STUDY

COURSE OF STUDY

Rays of sun as affected by these changes.
 Length of day and night. (14-5217; 16-5845.)
 Effect of change of seasons on life of mankind.

6. ZONES.
 Circles.
 Animal and vegetable life in each zone.

7. THE MOON. (1-22, 24, 144; 4-1353, 1449-50; 10-3535-44.)
 A satellite—meaning of the word.
 Examples of satellites.
 Phases of the Moon. (10-3540.)
 Study diagram.
 Meaning and explanation of:
 New Moon.
 First Quarter.
 Full Moon.
 Last Quarter.
 Eclipse.
 Define and explain.

8. GRAVITY. (1-142, 280; 2-386, 583-84, 622; 7-2362; 13-4795-96; 14-4903, 5177-81.)
 Gravitation.

9. TIDES. (2-583-84; 7-2542; 10-3734; 11-3843; 18-6558.)
 Causes.
 Kinds or names.
 High or flood.
 Low or ebb.
 Tidal bore.
Effects of tides.
 Their importance.

10. OCEAN CURRENTS. (7-2542; 16-5960.)
 Causes.
 Principal ocean drifts.
 Effects on climate.

11. LATITUDE AND LONGITUDE.
 Their importance; uses of each; how to find them. (1-18-19.)

QUESTIONS

the circle of light reach in Spring? Summer? Winter? Where is the most direct ray of the sun at each season? What change takes place in the length of day and night? What changes do you make at home when Spring comes? Winter? Summer? Clothing, food, heating and garden? How do the seasons affect the farmer's life?

What are zones? (8-2792-94.) What types of animal and vegetable life are found in each zone? What effect on the life and activity of the people has the zone in which they live? Illustrate by naming zones and countries.

Why is the moon called a satellite? (4-1449-50.) What does the word mean? Has the sun any satellites? Have any other planets any? (9-3180, 3293; 10-3409-10, 3535.) Do they move? How? What keeps them on their orbits? Make a diagram showing New Moon, First Quarter, Full Moon, Last Quarter. (10-3540.) What is an eclipse? (9-3170, 3172; 16-5843-44.) What causes it? Illustrate by a diagram.

What is the difference between gravity and gravitation? (13-4795-96; 14-5177-81.)

Why do ocean liners leave New York at midnight? At noon? What causes tides? Give two causes. What kinds of tides do you know? At what phase of the moon do we have Spring tide? Neap tide? What is a tidal bore? (See Index under Tides.) What are some of the effects of tides? Why are they so important?

Discuss the work and training of pilots. Name and locate four important ocean drifts. Which is the most important of the currents? What effect on climate would result if the Gulf Stream were turned north through Davis Strait? (13-4826.) Explain the difference in the climate of the State of Washington and Newfoundland.

How did the navigators on the Norge find their position? How did they tell others what this position was? What is latitude?

COURSE OF STUDY

- Degrees.
 Number in a circle.
 Parallels of Latitude.
 Meridians.
 Prime Meridian.
 Sub-Meridian.
 The compass. (11-3787-90; 12-4421-22; 16-5797, 5984; 17-6248.)
 International Date Line. (16-5841.)
Problem
 How do mariners and airship pilots find their exact location? (12-4421.)
 Standard time. (16-5841, 5842, 5845.)
 How decided upon?
 How regulated?
 Time sections of the United States.

12. ATMOSPHERE.
 Dew, fog, clouds. Causes.
 Humidity.
 Frost. Hail.
13. WINDS.
 Causes.
 Trade winds.
 The equatorial belt of calms.
 Effects of the earth's rotation.
 Wind belts.
 Classification of winds.
14. RAINFALL.
 Causes.
 Connection between winds and rains.
 Rainfall in the United States.
 Winds that are good rain-producers.
 Cyclones.
 Hurricanes.
 Waterspouts.
 Tornadoes.
15. VOLCANOES. (7-2313-14; 8-2873-74; 9-3237; see also list in Index.)
 Earthquakes. (2-568; 5-1811; 14-5219-20; 18-6554.)
16. GLACIERS. (7-2315, 2316, 2318; 11-3819; 6-2250; 15-5298, 5300.)
 Ice-sheets. Icebergs.
 Types of these.

QUESTIONS

(1-19.) What is longitude? (See Index.) How are these found? How many degrees in a circle? (11-4132.) What are parallels? Meridians? What are the uses of the compass? Describe the way in which it works. What is the International Date Line? (16-5841.) Why was it established? Is it straight? Give reasons.
 What is standard time? How is it regulated? How are reckonings made? What are the different time sections of the United States? (16-5841.) What is the principle of daylight saving? (17-6289.) Find the latitude and longitude of the place where you live. One degree of latitude equals how many miles? Find the latitude of the United States. Through how many degrees of latitude does it extend? To how many miles is that equal? What are Standard Time Belts? When it is seven o'clock in the morning in New York City what time is it in Denver? (16-5841.)

How is dew formed? (8-2922.) What connection have clouds with this process? What is frost? (8-2922; 14-4904-12.) Hail? (8-2923-24; 18-6556.)

What is wind? (18-6691-92.) What produces it? Of what aid to mankind are winds? What are "trade winds"? (3-873; 8-2666, 2792, 2794.) What is the equatorial belt of calms? Why were the Horse Latitudes so named? (7-2486.) Name all the kinds of winds you know. What causes trade winds, monsoons, land and sea breezes? (8-2794.) What form of transportation is greatly affected by the winds? (2-455-56.)

What causes rainfall? (8-2666, 2921-24.) What connection is there between winds and rainfall? (8-2794, 2923.) Make a map illustrating the rainfall of the United States. What are cyclones? (18-6692.) Hurricanes? What is a tornado? A waterspout? (5-1809.) What winds are good rain-producers?

Make a drawing of a volcano, showing its principal parts. (Colored picture facing 2-385.) Name some type volcanoes. What is a young volcano? An extinct volcano?

What was the continental ice-sheet? (6-1925-28.) What work was done by the ice-sheet in North America? In Europe? (1-158; 6-1955-56, 2069-70.) Describe the

COURSE OF STUDY

| COURSE OF STUDY | QUESTIONS |
|--|--|
| Causes. Effects. | effects on man of some great earthquakes. (2-568, 573; 17-6060.) How are icebergs formed? (4-1355.) Why are they a menace to sea-vessels? |
| 17. WEATHER. Causes. Weather instruments. Weather bureau. Weather maps. | Of what things is weather the result? (8-2663, 2921-24.) Name two weather instruments and describe their uses. (3-1028, 1152; 7-2648-49; 8-2718; 10-3625; 12-4502; 15-5287-88.) What is the weather bureau? (5-1792.) Write a paragraph on this service. What are weather maps? What are "low pressure areas"? (15-5287.) How are storms predicted? |
| 18. CLIMATE. Causes. Influencing factors. The effects of climate on plant and animal life and on man. How man overcomes his environment. | Are weather and climate the same thing? (8-2663.) Illustrate. What are some factors that influence climate? (6-2171; 8-2663-68, 2791-94; 9-3101.) What is the effect of climate on plant and animal life? Illustrate your answer by each zone. What influence has climate on the life of man and his activities? Illustrate by zones. Give instances in which man has conquered his environment. Tell how. How far can man go in conquering climate? |

CURRENT GEOGRAPHY

1. Does an acre of land pay better if used for agriculture or if used for grazing? Supplementary problem: Why, then, is any land used for grazing?
2. Why is sheep-raising replacing cattle-raising in many Western states?
3. Much iron ore is mined in Minnesota. Why is so little iron and steel manufactured there?
4. Why has manufacturing developed faster along the Great Lakes than along the Mississippi River?
5. Which section of the United States has the largest number of cities? Why?
6. Why has New York grown so much faster than Philadelphia and Boston?
7. Why is Cuba so great a sugar exporter?
8. What resources has Mexico that might make it a manufacturing country? Why has it not become so?
9. Which of our industries would be harmed if we could no longer obtain products from South America?
10. What influence may conditions in the farm belt have on our political history?
11. What relation is there between the numerous mountain ranges and the political history of Europe?

GEOGRAPHY, 8th GRADE

12. Why does England watch the Egyptian situation so closely?
13. What connection is there between a crowded country and colonization? Is there any possible connection with warfare? What?
14. What are the great undeveloped regions of the earth? What factors may lead to their settlement?
15. The Philippines. Should the United States grant them complete independence? Give reasons on both sides.
16. What are the possessions of Spain and France in Northern Africa? What war has just closed in that section?
17. What is the Tacna-Arica dispute? Illustrate with map. Explain plebiscite.
18. Why are Java, Sumatra and the other East Indies so important?
19. What industry has brought the Malay States into such prominence as an exporter?
20. Why is France so extensively engaged in manufacturing and commerce?
21. Why has Great Britain developed so extensive and such world-wide commerce?
22. Why have oil deposits become so important and valuable a resource?
23. Why has Great Britain a more extensive foreign trade than France?
24. China. What factors have caused China to be slow in developing her resources? What are her governmental difficulties?
25. What situation is causing difficulty in the Austro-Italian Tyrol?

TESTS (PHYSICAL GEOGRAPHY, 8TH GRADE)

FALSE-TRUE

Put a plus (+) after any of these statements that are true; a minus (—) after any that are false.

1. The sun revolves around the earth.
2. The seasons are caused by the inclination of the earth's axis.
3. The sun is the source of heat and light.
4. Longitude is distance north or south from the equator.
5. Only one side of the moon has ever been seen from the earth.
6. Revolution is the movement of the earth turning on its axis.
7. Gravity and gravitation are the same thing.
8. The moon is a satellite of the earth.
9. As I travel westward from New York to Denver I must turn my watch ahead.
10. The heaviest rainfall in the world is at the equator.

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. Tides rise and fall twice every day in the Pacific Ocean, because of the latitude.
2. Icebergs are caused by the effect of the Labrador Current, which breaks great masses from glaciers that extend down to the sea.
3. The International Date Line has been so drawn that no two neighboring regions belonging to the same country, and having the same temperature, shall have different dates at the same time.
4. Weather and climate are the result of (a) temperature of the air, (b) the downward pressure of air, (c) the amount of moisture in the air.
5. Great Britain was compelled to become a great commercial nation because she could not raise enough food supplies, raw materials, and minerals to support her population.

GUIDE TO GEOGRAPHY OUTLINES

If you are studying *home* and *local geography*, consult the 4th grade outline.

If you are studying North America, South America, United States in detail, use the 5th grade outline.

For Europe, Asia, Africa and Australia consult the 6th grade outline.

For trade relationships of the United States and for geography in the United States by industries, use the 7th grade outline.

For physical geography and for suggestive problems based on current events, consult the 8th grade outline.

HISTORY, 4TH GRADE

Average Age, 9 to 10½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

INTRODUCTION

The history of our country is the story of Americans and their doings. These Americans all came originally from many different lands, all except the *first American*. How he came here we do not know. He is the *Indian*.

1. THE FIRST AMERICAN, THE INDIAN.

Different tribes or nations. (1-165.)

(a) The Eastern Indians.

Algonquin.

Iroquois, etc.

Seneca.

(b) The Western Indians.

Sioux.

Navaho.

Dakotas, etc.

Where these lived.

How they built their homes. (5-1658; 1-160, 161-62; pictures, 1-163-64.)

How they raised crops and hunted game. (1-161.)

How they dressed. (9-3251-52.)

Their clothing, weapons and customs. (1-160-65.)

Find out what kinds of Indians once lived where you now do.

What has become of the Indians?

2. THE PEOPLE WHO FIRST SETTLED IN YOUR LOCALITY.

Find out their names. What nationality they were. How they came to settle where they did.

Visit the historical landmarks near your home. Find out their stories. Next study the history of the settlement of your own state. Find out the same things you looked up for your own town or village.

3. LOCAL HEROES.

Some of our country's heroes (as suggested by the holidays most generally observed). (6-2087-95.)

QUESTIONS

Why is the Indian called the first American? (1-160.)

Name some tribes of Eastern Indians. (1-165.) Describe the way in which they built their homes. (5-1658; 1-160-62.) Which Indians lived in the "long house"? Describe the training and schooling you would have received had you been a little Indian boy. By what means did the Indian gain his food? His clothing? (1-160-65.) Read the story of Hiawatha. (19-6985-86.) What was a medicine-man? (1-162.) Name some tribes of Western Indians. (1-165.) Describe their homes. (1-160.) Why does the Indian feel that the white man has not always treated him fairly? (3-778; 19-7235-36.) How did the Indians treat the first white men they saw? (19-7235; picture, 1-247.) What great American colonist never had any trouble with his Indian neighbors? Why? (William Penn, 2-552-53.)

Tell the history of the settlement of your own home. Who first cleared the land? Describe the first homes made there by white men and women. How did these settlers come to your home? Describe some of their hardships. Name some of the men prominent in the settlement of your own state. What landmarks are there near your home?

Why do we find so many places in the United States named for George Washington? (3-1039-42.) Why is he spoken of so often and with such respect and affec-

COURSE OF STUDY

COURSE OF STUDY

- (a) Washington. (3-1039-42.)
- (b) Lincoln. (3-1045-50.)
- (c) Hudson. (1-251; 14-4971.)
- (d) Lafayette. (4-1168; 6-2128, 2130; 10-3566.)
- (e) Hamilton. (10-3488-89.)
- (f) Jefferson. (3-1042-43.)
- (g) Lewis and Clark. (5-1703; 18-6426.)

Try to learn more than little amusing stories about them. Why do we call them great? What did they do for our country? Learn how they placed the good of America above their own interests. They were great Americans. In what ways can you be like them? Make a scrap book containing local history and the histories of these prominent men of your country. Read all you can find about them. How long ago did they live? How did they dress? (2-393.) When they went on a journey how did they travel? (5-1698.) How long did it take a letter to go from Philadelphia to Boston in those days? (5-1700.) Homes of those days. (5-1700.) Schools. (3-966-70.)

4. SOME GREAT LEADERS IN THE WORLD'S HISTORY IN OLDEN TIMES.

- (a) Pericles. (2-706; 3-1080; picture, 2-705.)
- (b) Alexander. (2-707-08; 8-2822, 2961, 2964; pictures, 3-913; 2-709.)
- (c) Cæsar. (4-1198-99, 1366-68; picture, 4-1360.)
- (d) Clovis. (10-3430; picture, 10-3431.)
- (e) Charlemagne. (10-3430; 11-3960; picture, 10-3433.)
- (f) Alfred. (4-1432-34; picture, 13-4587.)
- (g) Justinian. (13-4812.)

Look for pictures and descriptions of the times in which these men lived. Find out all you can of the customs of those days.

5. HOW THE MOVEMENT FOR THE DISCOVERY OF AMERICA BEGAN.

- (a) The beginnings of trade with the East. (1-83-85, 89; 8-2978.)

QUESTIONS

tion? Tell some of the things he did for our country. Give a short account of his life. What great services did Abraham Lincoln do for America? (3-1045-50.) Describe his life as a boy, his efforts to get an education. Why was he called "Honest Abe"? Why do we say that he saved the nation? What qualities had Lincoln that we might all well imitate? Where are Hudson Bay and River? Tell the stories of their discovery. (1-251; 14-4971; picture, 1-247.) What nation aided our country at the time of our revolution? (4-1168; 6-2128, 2130; 10-3566.) What Frenchman will we always remember with gratitude? Tell his story. (4-1168; 6-2128, 2139; 10-3566.) Who was Alexander Hamilton? (10-3488-89.) What services did he render his country? Tell the story of his life. What was the Declaration of Independence? Who wrote it? (20-7553.) Tell the story of this man's life. (3-1042-43.) What services did he do for the United States? What explorers first went through the northwestern part of our country? (5-1703; 18-6426.) Who sent them? Describe their hardships and the great things they accomplished. Describe life in this country at the time each one of these men lived. Customs of dress, travel, homes, newspapers, mails, schools. (5-1698-1700.)

Tell the story of Pericles. (2-706; 3-1080.) Who was Alexander? (2-707-09; 8-2822, 2961, 2964.) Why did he mourn because there were no more worlds to conquer? To what nation did Cæsar belong? (4-1198-99, 1366-68.) Why was he called "Great Cæsar"? Tell the story of Clovis. (10-3430.) Who was Charlemagne? (10-3430; 11-3960.) How long ago did he live? Tell the story of his life. To what nation did Alfred belong? (4-1432-34.) What sort of man does history tell us he was? What service did he do for his people? What great work did Justinian do? (13-4812.)

Where was "the East"? Why were men so anxious to trade with it? (1-83-84, 89; 8-2978.) Take your map and trace some of the early voyages of Marco Polo. (1-83-85.) Describe his travels. What lands did

HISTORY, 4th GRADE

COURSE OF STUDY

- (b) Voyages to find a new route to the East. Why desired?
Columbus. (1-86-89.)
De Gama. (1-89.)
Magellan. (1-90; 8-2980;
9-3295-96.)
- (c) Olden beliefs concerning the shape of the earth and monsters of the deep. (1-22; 9-3235-36.)
- (d) Invention of the compass. (16-5797.)
- (e) Invention of gunpowder. (5-1682.)
- (f) Invention of printing. (9-3381-82.)
Influence of each of these.
Make outline maps showing the routes traveled by each of these explorers. Put only one explorer and his voyage on each map. Color the part of the New World that he claimed for his sovereign.

QUESTIONS

he visit? Why were the nations so eager to find a new route to "the East"? Describe some of the rich cargoes that came westward. What countries carried on the greatest part of the trade? Why was Columbus so anxious to make a voyage? (1-86-89.) What did he hope to accomplish? Did he plan to discover a new world? Tell what you know of his hardships and trials. Describe Columbus' voyage. What country did he think he had found? For whom did he claim it? Describe Columbus' later voyages and death. (Make a model of Columbus' ship from the picture.) Why did Columbus name the red men "Indians"? (9-3190.) Who was Vasco da Gama? (1-89.) Describe his travels. For what country did he sail? For what country did Magellan sail? (1-90; 8-2980; 9-3295-96.) Why do we remember his voyage so especially? Where is the strait that bears his name? Why was it so called? Tell the story of the voyage of Magellan's flagship. Did Magellan sail around the world? What inventions influenced these voyages of discovery? How? (16-5797; 9-3381-82.)

CIVICS, 4TH GRADE

AIM: To give the child an understanding of working for the common good.

COURSE OF STUDY

The desirability of a clean city, town, or countryside. What we can do to keep it clean and thereby make it beautiful. How public servants help us. How we can help them.

QUESTIONS

How can we help make our city clean? How can we help to keep it so? What public servants help us all? How can we help them?

HISTORY, 5TH GRADE

Average Age, 10 to 11½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

1. EXPLORATION AND DISCOVERY.

The Northmen. (15-5291-92; 1-241; pictures, 1-240, 243.)

Review Columbus. (1-86-89.)

The Cabots. (1-242; 8-2978, 2980.)

Drake. (14-4962-65; 1-250; 8-2980.)

Raleigh. (14-4965-70; 17-6333-37; 5-1818; pictures, 5-1812; 14-4958-59.)

Vespucius. (1-242; 8-2980.)

Balboa. (1-242-43; picture, 1-253.)

Magellan (Review). (1-90; 8-2980; 9-3295-96.)

Coronado. (1-244, 246.)

Cortez. (1-244; 19-7132-33; picture, 1-254.)

De Leon. (1-242.)

De Soto. (1-244; picture, 249.)

Champlain. (2-679-80; 1-246, 248.)

Cartier. (2-678-79; 1-246.)

Hudson. (1-251; 14-4971; pictures, 1-247; 11-4109.)

2. THE BEGINNING OF COLONIZATION. (2-543-52.)

New York.

Virginia.

Massachusetts.

Maryland.

Rhode Island.

Pennsylvania.

Their reasons for leaving the Old World. The kind of men and women they were.

The location of each colony.

Climate.

Resources.

The French and Spanish settlements.

French. (2-677-80.)

Spanish. (19-7131-36.)

Problem

On sets of outline maps, color the part of North America claimed by each European nation. (1-252.) Make a key at the side showing by right of what discovery the land was claimed. On one large map

QUESTIONS

Where did the Northmen live? (15-5291-92; 1-241.) What parts of this country are they thought to have visited? Did they leave any traces in America? What land did Columbus claim? For whom? (1-86-89.) Why were all these countries so eager to gain new territory? What were the leading nations of Europe at this time? Look up the battle of the Spanish Armada. (5-1820; 14-5044, 5046.) What influence do you think it had upon the desires and acts of the countries concerned? Who were the Cabots? (1-242; 8-2978, 2980.) For what land did they sail? What land in America did they claim. Tell all you can about Sir Francis Drake. (14-4962-65; 1-250.) Who was Sir Walter Raleigh? (14-4965-70.) Where was the "lost colony"? (17-6333-37.) Describe some of the hardships these early settlers suffered. Why did they all settle so near the ocean? Why do we remember Americus Vespucius? (1-242; 8-2980.) Do you think this continent should have been called Columbia? Why? Who was Balboa? (1-242-43.) For what important discovery do we remember him? Tell the story. What land did he claim? For whom? Re-trace Magellan's voyage. Why was it important? (1-90; 8-2980; 9-3295-96.) Why did the Spanish feel that the New World should be theirs? (2-252.) Where did Coronado land? (1-244, 246.) Trace the marches of Cortez. (1-244; 19-7132-33.) With what people did he come into conflict? Describe them. Describe the war the Spaniards fought against them. Where were the explorations of De Soto? (1-244.) Tell the story of his wanderings and death. For what discovery do we remember him? What lake in the Northeastern part of New York State was named for a famous French explorer? (2-679-80; 1-246, 248.) What grave mistake did he make that cost France the friendship of the powerful Iroquois? Tell the story of his wanderings. What settlements did he make? For what country did Henry Hudson sail? (1-251; 14-4971.) Review the story of his explorations and discoveries. How did it

COURSE OF STUDY

QUESTIONS

show all the different claims.
Can you foretell what must soon
follow all these conflicting claims
and disputes?

happen that a man often claimed land for
a country other than his own?

3. SOME EARLY COLONIES AND THEIR LEADERS.

(a) THE DUTCH. (2-550, 552.)

Leaders in New Amsterdam.

Peter Minuit.

Peter Stuyvesant.

Customs.

Government.

Trade.

Troubles with the Swedes.

The "patroon" system.

Surrender of New Amsterdam. Why?

(b) THE ENGLISH.

VIRGINIA. Jamestown.

(2-543-46; 14-4970-71.)

Settlement.

Climate and soil.

Captain John Smith.

Pocahontas.

Early struggles.

The "starving time."

Introduction of slavery.

Government.

MARYLAND. (2-550, 552.)

By whom settled? Why?

Government.

MASSACHUSETTS.

1. Plymouth: the Pilgrims

(2-544, 546-48, 555.)

William Bradford.

(12-4445-46.)

Miles Standish.

The First Thanksgiving.

(6-2090.)

The Indians.

Government.

2. Massachusetts Bay. (2-546, 548-50, 555.)

John Winthrop. (10-3487; 12-4446.)

John Endicott.

King Philip.

Government.

RHODE ISLAND. (2-550.)

Its settlement.

The story of Roger Williams and Anne Hutchinson. (14-5267-68.)

Government.

NEW AMSTERDAM. (2-550, 552.) Who first settled New York? Why? Describe their life, houses, customs, government and trade. Write a paragraph about Peter Minuit. Who were the "patroons"? How did New Amsterdam become New York? Tell as much as you can about Peter Stuyvesant. What great natural advantages had New York? What traces of the Dutch are left in this country?

VIRGINIA. (2-544-46; 14-4970-71.) By whom settled? For whom named? What sort of men and women settled Virginia? Why did they leave England? Who was Captain John Smith? Pocahontas? What was the "starving time"? Tell the story of the introduction of negro slavery into Virginia. What kind of government had Virginia? What crops were raised?

MARYLAND. (2-550, 552.) Who settled Maryland? Why? For what thing do we especially remember Lord Baltimore?

MASSACHUSETTS.

Plymouth. (2-544, 546-48, 555.) Why did the Pilgrims leave England? Tell the story of their wanderings. Describe their voyage to America. Who was William Bradford? Miles Standish? Read the story of Miles Standish. Tell the story of the first Thanksgiving. (6-2090.) How did the Indians treat the Pilgrims? What sort of soil did the Pilgrims find in America? Describe some of their hardships.

Massachusetts Bay. (2-546, 548-50, 555.) Who were the Puritans? Where did they settle? Who was John Endicott? John Winthrop? King Philip? Tell King Philip's story.

RHODE ISLAND. (2-550.) How did Rhode Island come to be settled? Tell Roger Williams' story. Who was Anne Hutchinson? (14-5267-68.) What thing must be always remembered in connection with Rhode Island?

COURSE OF STUDY

COURSE OF STUDY

PENNSYLVANIA. (2-552-53.)
The story of its settlement.
The Quakers.
William Penn.
Penn's treaty with the Indians.
The founding of Philadelphia.
Government.

- (c) THE SPANISH. (1-242, 244-46;
6-1922; 18-6826; picture, 18-6829.)
In Florida and California.
St. Augustine. (18-6825; pic-
ture, 18-6829.)
Santa Fé. (2-543.)

- (d) THE FRENCH. (2-677-83.)
In Canada and the Ohio Valley.
Quebec.
Montreal. (Picture and note,
4-1482.)
Marquette and Joliet. (18-6631-
34; 1-248, 250.)
La Salle. (1-248, 250.)

QUESTIONS

PENNSYLVANIA. (2-552-53.) Who were the Quakers? Who was William Penn? Tell the story of the founding of Pennsylvania. Why had Penn no trouble with the Indians? Describe the founding of Philadelphia. Why is it called the "City of Brotherly Love"?

THE SPANISH IN NORTH AMERICA. (1-242, 244-46; 6-1922; 18-6826.) Why did the Spaniards come to the New World? In what parts of the country did they settle? What sort of climate have these places? (19-6848.) Describe the dress and customs of the Spanish.

THE FRENCH IN NORTH AMERICA. (2-677-83.) Why did the French wish to have colonies in America? What sections did they settle? What occupations and trades did they carry on? Who were Marquette and Joliet? (18-6631-34.) Tell La Salle's story. (1-248, 250.)

CIVICS, 5TH GRADE

COURSE OF STUDY

1. HEALTH.
(a) Cleanliness of:
1. Clothes.
2. Body.
3. Homes.
4. Stores.
5. Streets.
(b) Interest in clean markets.
Note which ones are clean and neat.
Notice those where food is covered or screened.
2. THRIFT.
(a) Health is thrift.
(b) Care of school books is thrift.
(c) Keeping public streets and roadsides clean is thrift.
(d) Spending money wisely, not foolishly, is thrift.
(e) To save a little of some thing every day is thrift.
3. COURTESY. True politeness is thinking of others first.

QUESTIONS

Name five ways in which you can make your town cleaner. Why do we say that we cannot be healthy if we are not clean? For what signs of cleanliness would you look in a store or market? What are wrong ways of caring for and displaying food?

What does the word thrift mean? (17-6361-62.) Give five ways in which you can practice thrift.

What does courtesy mean? What does the Scout Movement teach concerning it? Why do we say that a different word for *courtesy* is *unselfishness*? (12-4451-58.)

TESTS (HISTORY, 5TH GRADE)

JUDGMENT

Cross out any part of these statements necessary in order to make them correct.

1. Plymouth was settled (a) by the Puritans, (b) by the Dutch, (c) by men released from the debtors' prison in England, (d) by the Pilgrims.
2. The chief occupation of New Amsterdam was (a) farming, (b) fishing, (c) fur-trading, (d) shipping.
3. The French settled (a) along the St. Lawrence and the Great Lakes, (b) along the Pacific Coast, (c) in Florida.
4. Rhode Island was settled for (a) fur-trading, (b) as a refuge for escaped prisoners, (c) as a home for those who believed in religious freedom, (d) for tobacco raising.
5. The Cabots sailed under the flag (a) of England, (b) of Portugal, (c) of Holland.

FALSE-TRUE

Place a plus (+) before each statement that you consider correct.

Place a minus (—) before each one that you consider false.

1. The English claimed North America because of the discoveries of the Cabots.
2. Champlain made friends of all the Indians.
3. Sir Francis Drake settled the first colony in Virginia.
4. The Quakers treated the Indians with the greatest kindness.
5. The Puritans granted religious freedom to everyone in their colony.

GENERAL

1. Arrange these colonies in a column, with the reasons for settlement of each one placed next to it:

Colonies. 1. Plymouth, 2. New Amsterdam, 3. Jamestown, 4. Pennsylvania, 5. Maryland, 6. Rhode Island.

Reasons. Fur-trading; to make homes in the new land and thus claim it for England; for religious freedom; for a refuge for the persecuted.

2. Next to the name of each of these men place the discovery or exploration for which we remember him:

Balboa, Magellan, De Soto, Hudson, Cartier.

3. Next to the name of each of these men place the name of the colony which he led:

John Smith, William Bradford, Roger Williams, Lord Baltimore, William Penn.

4. On an outline map of North America show the sections claimed by the French, Dutch, English and Spanish. Mark with a cross any spots where friction among these countries is likely to develop.

5. Arrange these names in a list according to their importance. Place the one whose dis-

COURSE OF STUDY

coveries you consider had the most *far-reaching effect first*, the next one *second*, and so on. Be able to give your reasons.

Magellan, Hudson, Columbus, Champlain, Captain John Smith, De Soto, Balboa.

Remember that what makes a thing important are the results that come from it, so before you answer this question ask yourself, "What effect did this discovery have? What difference would it have made if it had never happened? What country claimed land because of it?" Then answer.

HISTORY, 6TH GRADE

Average Age, 11 to 12½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1. OUR HERITAGE FROM THE OLD WORLD.

(What does "heritage" mean?)

- (a) Primitive Man. (1-189-96; 5-1655-57; 9-3041, 3353; 10-3545-46; 6-1925-28.)

- (b) The Ancient World.

The story of:

Egypt. (3-807-21; 1-290-92, pictures in color, 293-95; 11-3977; 7-2486; 10-3546-48, 3550. See Index.) Babylon. (2-646-60; 14-5208-09. See Index.) Phoenicia. (1-83-84; 11-3910-12; 14-5042; pictures, 4-1431; 10-3546.) The Hebrews. (19-7155-58; 3-815-16, 818, pictures, 917; 15-5464.) The Persians. (3-910-18, map, 908.)

What we owe to the Greeks. (2-701-09; 3-1069-82; 12-4215-22. See Index.)

What we owe to the Romans. (4-1191-1200, pictures, 1201-08; 13-4812; 15-5346-48, pictures, 5351-56.)

Beginnings of Christianity. (2-575-78; 8-2843-45; 5-1862-63, 1865-66.)

Special Topics

The Rosetta Stone. (3-812, 814, 821; 10-3548.) Recent discoveries in Egyptian tombs. (3-818; 11-3874.) Write a description of the Acropolis. (2-705; 12-4216-17.) In your scrap book make a collection of pictures of Greek temples and statues. The Olympic Games. (12-4216, 4401; 3-1074.) Make a collection of Roman pictures. Read the story of Romulus and Remus. (4-1192.) Read the story of the Roman conquest of Great Britain. (4-1317-20.) Emperor Constantine. (4-1200; 2-578; 5-1691-92, 1858, 1866.) NOTE. You will often find letters placed next to a date, as 300 B.C. B.C. means before the com-

Describe the homes, clothing, weapons and food of primitive man. (8-3010; 1-189-92; 5-1655-57; 9-3041, 3353.) How did written language grow? (10-3545-46.) Why do we say that the Egyptians had a high type of civilization? (3-807-21.) Describe some of their temples. (14-5210-12, pictures, 5213-16.) Model a group of pyramids in your sand pile. (7-2604, pictures, 2606; 3-808-09.) What do we owe to the Egyptians? What country had the first code of law in the world? (2-652, picture, 651.) Who were the greatest sailors and traders of olden times? (1-83-84.) What especially do we owe to this people? (10-3546; 11-3912.) Where was Assyria? (2-647-50, 652-60.) Describe the palaces built by the Assyrians for their kings. (14-5209.) What debt do we owe to the Hebrews? (19-7156, 7157; 15-5464.) From what land did they spring? (19-7155; map, 3-908.) Who was Darius? (3-914.) Describe the life of the Spartans. (3-1072, 1074.) What is meant by the saying, "He lives like a Spartan"? What do we owe to Athens? (2-702-03, 706; 3-1080, picture, 1079.) What were the Olympic Games? (12-4401, 4216; 3-1074.) Name a great Grecian poet. (16-5747-48; 6-1983-86.) Who were Plato and Aristotle? (2-707-08.) Why does Greek civilization rank so high? (2-708.) What famous buildings do you know of that are modeled on Grecian lines? (Examples of Greek buildings, 15-5341-44, pictures, 5349-54; 3-1079.) Sum up the influence of Greece upon our life and country. Rome. (4-1191-1200; 15-5346-48.) Tell the story of the founding of Rome. Tell the story of Cincinnatus. (4-1193.) Of Horatius at the Bridge. (10-3639-42.) Why were the Romans called conquerors? What were some of the countries they conquered? Who were the Etruscans? What did the Romans learn from them? Where was Carthage? Why did Rome wish to conquer Carthage? (4-1194-96.) What did the Greeks teach the Romans? Who were some of the most famous Roman generals and leaders? (4-1361-68; 5-1859-66.) What led to Rome's fall? (4-1200.) What influence has Rome

COURSE OF STUDY

COURSE OF STUDY

ing of Christ. A.D. placed next to a date means Anno Domini—in the year of our Lord. (4-1316.)

Go back to your fourth grade history and review Clovis, Charlemagne, Alfred the Great.

Several years after the fall of the Roman Empire we find the nations of Modern Europe growing up in its place.

(c) Beginnings of Modern Europe.

The Making of the French.

(10-3429-34.)

The Making of the English. (4-1315-24, 1429-39; 5-1565-72.)

Life in the Middle Ages.

Special topics

How the common people lived.

(5-1720.) The Feudal System.

(4-1439.) Life in the castles:

the nobility. (English castles,

18-6489.) The Church in the

Middle Ages: One church to

which everyone belonged. (8-

2843-50.) Work of the monks.

(13-4859; 2-582, pictures in

color, 477-80.) The Crusades.

(7-2583-89.) Their influence.

(10-3432.) Learn the meanings

of these words: Chivalry (stories

about King Arthur and his

knights illustrating chivalry, 19-

6941-45; 16-5823-24; 17-6320-

23; 7-2460-61); joust; tourna-

ment; knight; serf; feudal;

guild; minstrel (17-6267; 1-56-

57). Richard the Lion-Hearted.

(5-1570; 7-2587-88.) Describe

a tournament. Describe the

dress and equipment of a knight

at this time. (Stories of King

Arthur with accompanying pic-

tures give information on this

topic. See *Chivalry* above.)

King John and the Barons:

Magna Carta (Great Charter).

(5-1571, picture, 1564.)

QUESTIONS

had upon our country? (Law, 13-4812; citizenship, road building, engineering, 15-5346-48.) What is meant by the letters B.C.? A.D.? (4-1316.) Where did Christianity originate? (4-1199.) How did it spread? (2-575-78; 8-2843-45.) What emperor granted freedom to the Christians? (2-578.) What tribes arose after the fall of the Roman Empire? (4-1200, picture, 1195; 11-3960.) Who were the Goths? The Vandals? Who were the Franks? (10-3429-30.) Where was the Frankish Empire? (10-3430; 11-3960.) Who were the Angles and Saxons? (4-1429.) Tell the story of the introduction of Christianity into Great Britain. (4-1430.) What troubles had Great Britain with the Danes? (4-1432-34.) From what country and direction did they come? What great English ruler made a treaty with the Danes? What other services did he do for his country? (4-1434.) Who were the Normans? How did they conquer England? (4-1436-39; 5-1565-66.) What effect had the Norman Conquest on the English nation? What years are covered by the period which we call the Middle Ages? Describe the life of the nobility during this time. Discuss their dress. (1-186; also pictures in connection with the King Arthur stories), castles (18-6489), ways of eating, furniture, the wars they carried on and their sports (Sport of Falconry, 10-3754). How did they travel? What do people mean when they say that the workingman can now have luxuries that a noble of the Middle Ages could never have enjoyed? Describe the life of the poor people during this time. (5-1720.) What were serfs? How was trade carried on at this time? (Example: Hanseatic League, 11-3963.) What was the feudal system? What did the lord of the castle do for those dependent upon him? What valuable work was done by the monks in the Middle Ages? (13-4859; 2-582, pictures in color, 477-80.) What were the Crusades? (7-2583-89.) What results had the Crusades? (10-3432.) What was the Magna Carta? (5-1571, picture, 1564.) Tell the story of its granting.

2. THE EUROPE THAT FOUND AMERICA.

The East and West.

Special topics

(Review 4th and 5th grades for information.)

Nations in power at this time.

What great nations had risen in Europe at the time of the discovery of America? With what countries was trade carried on? What were the chief trade routes from East to West? Who was Prince Henry the Navigator? (14-5184.) Why do we remember him? What effect had the invention of gun-

COURSE OF STUDY

QUESTIONS

Trade and trade routes. Need of new routes. New inventions. Printing. (15-5460; 9-3381-88.) Revival of Learning. (13-4798, 4800; 3-823-24, 1117-18.) Review the explorers and discoverers that you studied in the Fifth Grade. Review the settlements by different countries.

3. THE LATER COLONIAL PERIOD.

- (a) Conditions in England.
 - Charles the First and trouble with Parliament. (6-1974-78; 11-3845-47.)
 - Oliver Cromwell and Revolution. (6-1976-78; 11-3846-48.)
 - Colonization is checked for a time. Charles the Second and Restoration. (6-1979-81.)
 - (b) Settlement of the Carolinas. (2-553-54.)
 - (c) Settlement of Georgia by James Oglethorpe. (2-554.)
 - (d) The first American schools and colleges. (3-966-70.)
 - Harvard. (2-550; 12-4308.)
 - William and Mary. (12-4308.)
- Summary of the resources of North America as available to the colonists. Northeastern colonies. (10-3401.) Southern colonies. (13-4517-20; 2-545-46.)

Steps toward self-government

Types of government in the colonies. (2-543, 550.) Effect of soil and climate on occupations. (10-3401; 13-4517-20.) Effect in turn of occupations on unit of political government. (Ex. In New England, the town. In the South where a more rural population was found, the county became the unit of government.)

powder on the rule of the castles? To what do you think the invention of printing led? What is meant by the Revival of Learning? (13-4800; 3-823-24, 1117-18.) What colonies had been established in America by 1630? Tell where each one was located, by what country owned, and for what reason settled. (2-543-55.)

What grievances had people in England against Charles the First? (6-1974-78.) What rights did they demand? Who was Oliver Cromwell? (6-1976-78.) What effect had these troubles on colonization? When was colonization resumed? (6-1979-81.) Describe the settlement of the Carolinas. (2-553-54.) Of Georgia. (2-554.) Where were schools first begun in America? (3-966-70.) How early? Where and when were the first colleges founded? (12-4308.) What were the chief opportunities that North America presented to the colonists? (10-3401; 13-4517-20.) What is the difference between a colony with a charter and a proprietary colony? (2-543, 550.) Give examples of each. What government by the people existed in the colonies? (2-554.) What types of self-government did the thirteen colonies develop? What was the Mayflower Compact? (Picture, 7-2525.) When and where was the first colonial assembly in America? (2-546.) What effect had soil and climate on the unit of government developed?

CIVICS, 6TH GRADE

COURSE OF STUDY

QUESTIONS

Services done for us by our local and state community.

- 1. Schools. (17-6218; 15-5621-22; 19-7122.)
 - How financed and maintained? Taxes. (13-4556.)
 - What does our state do for us in this connection?
 - What funds does the state supply?

What are taxes? (13-4554.) Why should we pay them promptly and cheerfully? (13-4553-56.) What services do we receive in return for the payment of taxes? Why could each man not do these services for himself? How is money raised for schools? (13-4556.) What is the part of the township? Of the school district? Of the state? Name some of the advantages brought into

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

- | | |
|---|--|
| 2. Libraries. (17-6218; 15-5624, 5627-28.) How maintained? Funds. | a community by a library. What are the advantages of good roads? How are these built? How maintained? (14-4895.) What is a constable? What are his duties? What are state police? How is a city community protected? A rural community? (Fire, 9-3157-69.) |
| 3. Roads. (14-4895.) How built? How kept in condition? | |
| 4. Protection. Local. State. | |

TESTS (HISTORY, 6TH GRADE)

COMPLETION

Fill in the blank spaces with the correct answers.

1. We owe the alphabet to the
2. Our heritage from Greece is, and
3. Great law-givers were the
4. We owe the Ten Commandments to the
5. The were the greatest traders and sailors of antiquity.
6. gave liberty to the Christians and made Christianity the state religion.
7. Learning was kept alive during the Middle Ages by
8. A.D. means
9. made a treaty with the Danes.
10. The Crusades were

FALSE-TRUE

If you agree with the statement place a plus (+) next to it.
If you disagree place a minus (-).

1. Newspapers were common during the Middle Ages.
2. The lord of the castle protected the serfs in return for their services.
3. The Venetians were great traders.
4. Richard the Lion-Hearted granted the Magna Charta.
5. Henry the Navigator was king of England.
6. The settlers in the thirteen original colonies developed resource and self-reliance in the New World.
7. Emigration to North America was checked during the reign of Queen Elizabeth.
8. Soil and climate have strong influence on the political life of the people.
9. The first school in America was established in Massachusetts in 1624.
10. North Carolina was settled by James Oglethorpe.

HISTORY, 7TH GRADE

Average Age, 12 to 13½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1. THE STRUGGLE FOR CONTROL OF NORTH AMERICA. (3-777-84.)

Look at the map you made showing the colonies owned by different European nations.

- (a) Which two nations control the greatest part of North America? (Wars in Europe at this time.)
- (b) Parts of North America controlled by the English. (2-543-55, 682; 3-777.)
 1. Reasons for settlement in this section.
 2. The Appalachian Barrier. Its effect: (Made English colonies stronger. Could not spread over too great area.)
- (c) Sections settled by the French. Reasons. (3-777-78.)

Followed natural gateways and water-routes.
- (d) The Great Valley.
 1. How reached.
 2. Passes through the mountains.
- (e) Types of colonies founded by the French and English. (3-777.)
- (f) War and the colonies.
 1. Indian warfare.
 2. French losses—Acadia, Louisburg, Newfoundland. (3-779.)
 3. How these wars unified the colonists and made them self-reliant.

(g) Wars in Europe and their effect on the American situation. (3-778.)

- (h) The French and Indian War. (3-782.)
 1. Rival claims in the Ohio Valley. (3-780.)
 2. The Virginians and the French clash.
 3. Braddock's defeat. (3-780-82.)
 4. Washington's defense of the frontier.
 5. Fort Duquesne (Pittsburgh). (3-780.)
 6. Canada.

Capture of Louisburg. (3-779.)
Capture of Quebec (Wolfe and

What events caused Spain's power in North America to diminish? (5-1820; 14-5046.) Why was she not concerned in the final struggle with France and England for control? (2-543.) Which parts of North America were held by the English? (2-543-55, 682; 3-777.) What is meant by the Appalachian Barrier? (13-4518-20.) What effect had it on the development of the English colonies? What routes did the French follow in their explorations? (1-252; 2-677-80.) What differences do you find between the French and English colonies, in government, in occupations? (2-682; 3-777.) Which do you think were more self-reliant? In what colonial wars did the colonists engage? (3-777-84.) What part was played by the Indians in these wars? What effect had this warfare on the colonists? (4-1159.) (Unifying—gave them self-confidence and self-reliance.)

Between what nations in Europe was war being carried on at this time? (3-778.) What effect had this on the situation in America? What were the causes of the French and Indian War? (3-779-80.) Why is this war so named? Tell the story of the dispute over the Ohio Valley. (3-780.) What was the cause of Braddock's defeat? (3-780-82.) Where was Fort Duquesne? (3-780.) What city now stands there? Tell the story of the fighting in Canada, of Wolfe and Montcalm at the fall of Quebec. (3-782-84, picture, 776.) Why do they call this the battle that decided the future of a continent? What were the results of the French and Indian War? (3-784.) Which

COURSE OF STUDY

QUESTIONS

Montcalm). (3-780-82; picture, 3-776.)

7. Results. (3-784.)
- (a) France loses control in America.
 - (b) England's colonial empire extended.
 - (c) Colonies more closely united.

2. LIFE IN THE COLONIES.

(3-965-76.)
Life and Homes.

- (a) In cities.
- (b) In the country.
 - 1. In the North.
 - 2. In the South (slavery).
- (c) Means of heating and lighting. (5-1698-1700.)
- (d) Means of travel.
- (e) Means of communication.
- (f) Manufactures in the colonies. (4-1158.)
- (g) Chief occupations.

Describe a home on the frontier in 1765. Where might the frontier have been located at this time? Describe the life on a plantation in the South. What means of lighting and heating were used? (5-1698.) Describe a colonial kitchen in New England. How was mail carried? What were the chief means of travel? (5-1698-1700.)

3. SEPARATION FROM ENGLAND.

(6-2100-01; 4-1157-59.)
The change in English policy. (The colonists had been "let alone" for many years. This policy had left them free to develop independent ways of thinking and had made them more self-reliant.) The main background of the colonies was English.

Some rights of Englishmen.

- (a) The right to manage their own local affairs (town moots).
- (b) A representative form of government. (Simon de Montfort's Parliament, 5-1572.)
- (c) Taxes not to be levied unless voted for by representatives in Parliament. (Bill of Rights, 6-1981; 4-1160.)
- (d) Freedom of speech and elections. (Bill of Rights, 6-1981.)
- (e) No quartering of troops in times of peace.
The colonists brought with them these ideas.

What change took place in England's treatment of her colonies after the French and Indian War? (4-1159.) What was the "let alone" policy? (4-1158-59.) What effect had it upon the colonists? What were some of the rights the colonists believed belonged to them as subjects of England? (6-2100; 4-1159-60.)

What factors had worked to develop a strong feeling of independence and self-reliance among the colonists? What effect had the colonial wars had upon the colonists? (4-1159.)

4. OTHER THINGS WHICH MADE THE COLONISTS EVEN MORE INDEPENDENT IN THOUGHT AND NATURE.

- (a) The more independent and self-reliant would tend to emigrate in the search for greater liberty.
- (b) The long-continued "let alone" pol-

COURSE OF STUDY

QUESTIONS

icy. (Colonists had been obliged to make decisions and manage affairs for themselves.)

- (c) The difficulties which the colonists had met and overcome in the New World.

5. CAUSES FOR THE CHANGE IN ENGLISH POLICY.

- (a) Desire to increase revenues from the colonies. (4-1158-59.)
- (b) Debts from the French and Indian War which must be paid. (4-1159.)
- (c) Character of George III. (4-1162; 6-2100.)

(NOTE. Read 4-1157-74 for information necessary to answer questions on the Revolution.)

What were the causes of the change in England's policy toward the American colonies? (4-1158-59.) Why had England not encouraged manufactures in the colonies? Describe the forms of government in (a) Virginia (2-546), (b) Massachusetts (2-554), (c) Pennsylvania (2-552-53). To what extent did the colonists have representative government? What does "representative government" mean? Who levied taxes in the colonies? (4-1159.)

6. SOME FEATURES OF THE NEW POLICY AND THEIR RESULTS.

- (a) Navigation Acts. Attempts to enforce them.
- (b) Stamp Act. (4-1159.) Stamp Act Congress.
Resistance in the colonies. (4-1160.)
Samuel Adams—Massachusetts.
James Otis—Massachusetts.
John Dickinson—Pennsylvania. (12-4450.)
Patrick Henry—Virginia.
Standing armies. Resistance.
Boston Massacre. (4-1162; picture, 4-1160.)
- (c) The Townshend Acts. Repeal. (4-1162.)
The duty on tea retained to show authority of the mother country to tax the colonists.
Boston Tea Party. (4-1162.)
Boston punished.
Opposition in England to this policy. William Pitt.
Committees of Correspondence.
Minute Men.

What were the Navigation Acts? When were they passed? When enforced? What was England's object in passing them? Show how these acts would affect the colonies. What was the Stamp Act? (4-1159.) How did the colonists respond to these laws? Name two prominent New England patriots who were active in resistance to England's attempts at oppression. (4-1163.) Name other leaders of opinion (a) in Virginia (4-1166), (b) in Pennsylvania (12-4447-50). What was the American reaction to the quartering of troops upon them? (4-1159.) What right of English subjects did this violate? What were the Townshend Acts? (4-1160-62.) Why was the duty on tea retained when the rest of the acts were repealed? (4-1162.) Who was William Pitt? What was his attitude on England's treatment of her colonies? What was the Boston Tea Party? (4-1162.) How was Boston punished for this act? What were committees of correspondence? Minute Men?

7. FIRST CONTINENTAL CONGRESS, 1774. (4-1162.)

(Had no power to make laws, but made recommendations.)

- (a) Issued declaration setting forth grievances and the rights of the colonists.
- (b) Formed a boycott or general non-importation association against British goods.

What was accomplished by the First Continental Congress? (4-1162.)

COURSE OF STUDY

QUESTIONS

8. BEGINNINGS OF THE REVOLUTION.

Lexington and Concord. (4-1163-64.) Remember that up to this time few if any Americans had even thought of separating from England. They were merely endeavoring to secure what they felt were their rights. The tide of opinion begins to change.

- (a) Washington, commander-in-chief. (4-1164.)
- (b) Bunker Hill.
- (c) Ethan Allen at Crown Point and Ticonderoga.
- (d) An attempt to the North. Arnold and Montgomery at Quebec.
- (e) Boston evacuated by the British.
- (f) Sentiment in America. Declaration of Independence. (4-1166; 20-7553-57.)
- (g) Second Continental Congress in session. (4-1164.)

9. THE GENERALSHIP OF GEORGE WASHINGTON. (4-1164-73.)

- (a) Difficulties. (3-1040.)
 - 1. Lack of money.
 - 2. Conspiracies. (4-1170.)
- (b) Times of Discouragement. (4-1168.)
- (c) Capture of New York by British. (4-1166.)
- (d) Washington's retreat. (4-1166, 1168.)
- (e) Trenton and Princeton. (4-1168.)
- (f) Capture of Philadelphia by British. (4-1168, 1170.)
- (g) Valley Forge. (4-1170.)
- (h) Tories. (4-1166.)
- (i) Services of Robert Morris.
- (j) Volunteers from Europe. Lafayette (4-1168), Steuben (4-1161), Kosciuszko (4-1161).
- (k) British plan to divide the colonies fails at Battle of Saratoga. (4-1166, 1168.)
Turning point of war
- (l) French aid. (4-1168, 1170.)
- (m) The American navy. (4-1170; 17-6325-28.)
John Paul Jones.
Commodore John Barry.
- (n) Benedict Arnold. (4-1172; 11-3996.)
- (o) Fighting in the South. Marion. (4-1170-71.)
- (p) Cornwallis surrenders at Yorktown. (4-1172.)

What was the "shot heard round the world"? (4-1174; 11-4032.) Tell the story of Lexington and Concord. (4-1163-64.) These were in reality very insignificant battles; why were they so important? What change began to take place in American opinion and feeling? (4-1164.) Recite the steps that show the colonists' preparations for war. What result had the Battle of Bunker Hill? Ticonderoga and Crown Point? Tell the story of the American invasion of Canada. (4-1164.) Who wrote the Declaration of Independence? (4-1166.) What great principle is laid down in this document?

What difficulties had Washington to surmount? (3-1040.) Who were the Tories? (4-1166.) Tell the story of the capture of New York. (4-1166.) If possible, name some local points, where fighting was carried on, that have commemorative tablets or monuments and describe the events connected with them. Who was Nathan Hale? (11-3995-96.) Describe Washington's retreat across New Jersey. (4-1168.) Why is this called the "time of discouragement"? What man rendered our country great financial services at this time? What foreigners gave valuable services to our army? What was the British plan to divide the colonies? At what battle was it defeated? (4-1168.) Why is this called the turning point of the Revolution? What country now came to the aid of America? (4-1170.) What conditions in Europe acted to help the Americans? (4-1170.) Describe the fighting done by the Americans at sea. (17-6325-28.) Who was John Paul Jones? Commodore John Barry? What blow did a once brave American inflict upon his country? (11-3996.) What commander was called the "Swamp Fox"? (4-1170.) Why? Tell how Cornwallis was trapped and forced to surrender at Yorktown. (4-1172.)

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

10. TREATY OF PEACE. (5-1695-96.)
(a) John Adams.
(b) John Jay.
(c) Benjamin Franklin. (10-3487-88;
12-4447-50.)
11. THE NEW NATION.
Fear of a new strong central government that might prove as tyrannical as the one just thrown off.
Some plan of union and government must be worked out.
(a) The Articles of Confederation. (5-1696-97.)
Weaknesses of these Articles.
1. No president with any power to enforce law.
2. Congress had no power. It could call upon the states to act but it could not compel obedience. (Ex. Could not raise men for the army, or money to pay debts. Could not regulate commerce or levy taxes.)
3. Each state was a law unto itself.
4. Congress consisted of only one house where each state large or small had equal vote.
(b) Demands for a new and stronger plan of government.
(c) Washington offered a crown. (5-1697.)
(d) Ordinance of 1787. Slavery was forbidden in all territory northwest of the Ohio River.
The breakdown of the Confederation and formation of the Constitution. (5-1697-98.)
Other difficulties caused by the weak government.
1. Foreign countries put tariff on American goods and America could not retaliate.
2. Commerce between the states was in great confusion. (5-1697.)
3. Foreign countries had no respect for America.
12. MAKING THE FEDERAL CONSTITUTION.
(a) Conferences to discuss trade and navigation.
(b) The Constitutional Convention. Representatives.
(c) Disputes, (1) between the large (5-1697) and small states, (2) between the commercial North and the agricultural South, (3) between those who
- What prominent American negotiated the peace treaty? (5-1694-95.)
- Why were the Americans afraid of a new strong central government? Give reasons why they could not continue as they were, each colony governing itself. What plan of government was adopted? (5-1696-97.) Show wherein and why this new plan was a poor one. Name the weaknesses that made it so and explain in what way they were bad for the new nation. Cover these heads: (a) president, (b) powers of Congress, (c) taxes, (d) army, (e) commerce. What were some of the qualifications of voters? What classes could not vote? What action of Washington's shows what a great and far-seeing man he was? What one important piece of work was done by the government under the Articles of Confederation? What were its chief provisions? Make an outline map showing the location and extent of (a) the thirteen colonies (b) the Northwest Territory. Show the most important cities and the chief occupations. What were some other difficulties of the new nation? What was Shay's rebellion? (5-1697.) What did it illustrate?
- What was the first step toward making a new Constitution? What was the next move? How did the colonies respond to the call to the Constitutional Convention? (5-1697-98.) Name some of the most prominent delegates. What were some of the chief causes of dispute in the Constitutional Convention? What type of interests had the South? The North? What were the principal weaknesses of the Articles of Confed-

HISTORY, 7th GRADE

COURSE OF STUDY

wished to give great power to the masses and those who did not believe this to be right. Many leaders did not trust the common people but believed them to be dangerous.

Differences between the Articles of Confederation and the Constitution

Articles of Confederation

1. There was no power to enforce laws.
2. Congress could only ask states to contribute their share toward expenses.
3. Congress could not raise armies.
4. Congress was composed of only one house.
5. No judicial department.

Adoption of the Constitution. (5-1698.)

QUESTIONS

eration? How did the Constitution correct these? (Name each weakness in the Articles and tell how the Constitution improved upon it.) (See Vol. 20 for text of Constitution.) What compromises were made in order to secure agreement to and adoption of the Constitution? Why is the time between 1783 and 1789 called the "Critical Period"? What period of years did the Revolution cover? Over what years did the period of colonial wars extend?

Constitution

1. There was an executive to enforce the laws.
2. Congress could levy and collect taxes without asking aid from state governments.
3. Congress could raise and support armies and naval force.
4. Congress composed of two houses which could regulate trade with foreign countries and between states.
5. Supreme Court established.

Washington the first president. (5-1698.)

CIVICS, 7TH GRADE

COURSE OF STUDY

Meaning of "No taxation without representation." (4-1159-60.) Meaning of the word "democracy" as employed in the phrase "The United States a *democracy*." (5-1788.) Equal opportunity *politically, socially or educationally*? Representation in our state government and in our federal government. (5-1788-89.) The system of two houses. (5-1788-89.) Why installed? (5-1697.) The importance of education in a democracy. Qualifications of a voter. (6-2093.) The duties of a voter. (6-2093.) Balance of representation in federal and state government. How one may be a citizen and not a voter. (Those under 21.) Their privileges and duties. (19-7185-86.) Services rendered by the state government in education and health protection. Services rendered by the federal government under the same heads.

QUESTIONS

What is meant by the saying "No taxation without representation"? (4-1159.) What is meant by a democracy? (5-1788.) What is meant by political equality? When our country first began had everyone political equality? What difference between the qualifications for a voter in Washington's time and now? (See Vol. 20 for text of Constitution.) Why do we consider it important that the citizens of a democracy should be intelligent? What bearing would this have on education? What are the duties of a voter? (6-2093.) How is the balance of representation kept in Congress between the states having a small population and those having a large one? (5-1788-89.) Pupils are not voters, but they are citizens. What is the difference? What are the rights of a citizen? (19-7185-86.) What does your federal government do for you (a) in education, (b) in protection of health? What does your state government do for you in these things? What duties do you owe in return?

TESTS (HISTORY, 7TH GRADE)

JUDGMENT

Next to each statement place the letter of the answer which you think *best* completes it.

1. The French settled where they did in North America because (a) they liked the colder climates, (b) they followed the natural waterways and gateways, (c) they wanted to keep away from the English.
2. The English colonies had the advantage over the French in strength of growth because (a) they were near the ocean, (b) they had many short, powerful rivers, (c) the Appalachian barrier kept them from spreading out thinly over an extensive area.
3. The Battle of Quebec was important because (a) of the death of Wolfe and Montcalm, (b) it taught the Indians a lesson, (c) it decided what nation was to rule in North America.
4. The colonists rebelled against England because (a) of her long, cruel treatment of them, (b) they did not like the idea of being governed by another country, (c) they would not tolerate the idea of taxation without representation.
5. The Battle of Bunker Hill was important because (a) it was a great British defeat, (b) it taught the Americans that they could successfully resist the British, (c) it caused the British to lose a great number of men.

FALSE-TRUE

Put a plus (+) before every statement which you believe is correct; a minus (—) before every one you consider incorrect.

1. From the very beginning the colonists were determined to become independent.
2. England had not interfered with the colonies until about 1760.
3. England encouraged all kinds of manufactures in the colonies.
4. The Battle of Saratoga was the turning point in the American Revolution.
5. The end of the Revolution found the colonies closely united and in sympathy with each other.
6. France came to America's aid at the beginning of the Revolutionary War.
7. Washington was indignant at a letter offering him a crown.
8. The Ordinance of 1787 was the first piece of legislation completed under the new Constitution.
9. At the time of the adoption of the Constitution only about one-fourth of the white men in the country took part in the elections.
10. Washington took the oath of office as president in the spring of 1789 in New York City.

HISTORY, 8TH GRADE

Average Age, 13 to 14½

(NOTE. Some questions are given here for which you will be able to find no direct answers in the text. These are "thought questions." Go over all the facts that you have learned that bear on the question, then try to think out your answer.)

COURSE OF STUDY

QUESTIONS

1 PROBLEMS THAT AROSE WITH THE NEW PLAN OF GOVERNMENT.

- (a) The choosing of a cabinet. (5-1699, 1790.)
- (b) How the problem of the payment of debts was solved by Hamilton's Measures. (5-1700; 10-3488-89.)
 1. What the measures were.
Moving the capital to Washington. (5-1533-44.)
United States Bank.
Protective tariff. (5-1700.)
 2. How the question of states' rights arose through opposition to some of the measures. (Whisky Rebellion, 5-1700; 11-3937.)
- (c) How two great political parties arose out of the question, "Shall the federal or state government be supreme?" (5-1702.)
 1. Hamilton, leader of Federalists.
 2. Jefferson, leader of Anti-Federalists.

2 HOW AMERICA BECAME INVOLVED IN FOREIGN AFFAIRS.

- (a) The United States has trouble with England. (5-1700-02; 17-6328-29.)
 1. How England seized and sacked American vessels.
 2. Why Jay's treaty only postponed settlement of the question.
- (b) How the United States became involved in trouble with France. (5-1702; 17-6328.)
 1. How Washington's decision on neutrality was accepted. (5-1702.)
(Note the influence it has had in recent American affairs with Europe.)
 2. How different opinions led to the Alien and Sedition Laws. (5-1702.)
Special topic
The French Revolution. (6-2127-34.)
- (c) Blockade by Western Europe. (5-1703.)
American protests.

After the adoption of the Constitution and the choice of Washington as president what other problems confronted the country? (5-1698-1700.) What part did Hamilton play in setting the new nation on a sound financial basis? (5-1700; 10-3488-89.) What were the measures advocated by him? Who opposed these measures and why? What was the Whisky Rebellion? (5-1700; 11-3937.) What two great parties arose? (5-1702.) Who were their leaders? What were the principles of both parties?

What troubles drew America into foreign affairs? (5-1700-02; 17-6328-29.) What chief grievances existed between this country and England? (5-1702-03.) What effect had Jay's treaty upon the situation? How was the treaty received? What difficulty arose between the United States and France? What far-reaching effect had Washington's decision on our national policy? Tell something of the troubles which now shook France. (6-2127-34.) Why were many people in this country inclined to aid France? What were the Alien and Sedition Laws? (5-1702.) What unfriendly action toward this country was taken by both France and England? What effect had these events on the commerce of the young country? What were the causes of the War of 1812? (5-1704.) What were the chief events of the war (a) on land (5-1704-07), (b) on the water? (17-6329-32.) What discouraging reverses on land had the Americans? With what do you associate these names: John Quincy Adams (10-3489-90), Perry (5-1704; 17-6330-31), Jefferson (3-1042-43),

COURSE OF STUDY

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QUESTIONS

- (d) War of 1812. (5-1704-07.)
 1. Causes.
 2. Chief events.
 (a) On land.
 (b) On sea. (17-6329-32.)
 3. Results: Chiefly economic; increase in manufacturing. (5-1706.)

Make a map showing the extent of the United States at this time with the land involved in the claims of the states.

Draw a map showing the location of the chief events of the War of 1812 on land and sea.

- (e) The Spanish-American Republics. (19-6974-83, 7033-50, 7131-42.)
 1. Independence of South American republics.
 2. The Holy Alliance.
 3. The Monroe Doctrine. (6-1914; 11-3938-39.)

3. DOMESTIC AFFAIRS.

- (a) Protective Tariff. (13-4555.)
 What it means.
 Why the North desired it and the South did not.
 Effect of the War of 1812. (5-1706.)
 Industries in the North—in the South.
 Tariff of Abominations. (11-3939.)
 Opposition of the South.
 (b) Jacksonian Democracy. (11-3939; 6-1916.)
 Andrew Jackson, the people's president.
 The Spoils System: Its results.
 Doctrine of Nullification.
 Jackson's firmness.
 Jackson and the United States Bank.
 Panic of 1837.
 Growth of political democracy.
 More people gain right to vote.
 Development of popular education
 Horace Mann. (14-5254.)
 DeWitt Clinton. (13-4882-86; picture, 5-1694.)
 Mary Lyon. (14-5270.)
 Increase of secondary schools and colleges.
 Growth of newspapers and magazines.

Gallatin (10-3489), Madison (11-3938), Jackson (3-1043-45; 5-1705, 1706-07). Why was the War of 1812 unpopular in New England? (5-1705-06.) What chain of events led to the Monroe Doctrine? (6-1914.) What was the sentiment expressed in this message? (11-3938-39.) What far-reaching effects has it had?

What does "protective tariff" mean? (13-4555.) Why and when was it first felt to be necessary? Why did the North favor it and the South oppose it? (11-3939.) What was the Tariff of Abominations? Why was Andrew Jackson called "the people's president"? (6-1916.) What is meant by nullification? (11-3939.) How did Jackson handle the situation that arose? What was the Spoils System? What effect had it upon office-holders and politics? Why did Jackson so firmly oppose the United States Bank? In what panic did the destruction of the bank result? What things show an increase in democracy during the period you have just covered? Who were some of the leaders in the movement for education?

(NOTE: The Spoils System is a practice introduced by Andrew Jackson whereby all government office-holders who hold their positions by virtue of appointment are removed when there is a change of the party in power and their places are filled by members of the new party in control. Of late this system has been somewhat done away with by the Civil Service, by which most government positions are filled by competitive examination without regard to party allegiance.)

4. HOW THE YOUNG NATION GREW LARGER.

- (a) The Louisiana Territory. (5-1702-03; 11-3938.)

What had Napoleon to do with the increase in territory of the United States? (5-1702-03.) Draw a map showing the extent of the land involved in the Louisiana Purchase.

COURSE OF STUDY

QUESTIONS

Napoleon.

The United States buys the territory. Lewis and Clark explore it and reach the Pacific. (5-1703; 18-6426.)

- (b) The Florida Purchase. (6-1910.)
Andrew Jackson's part in it.
- (c) The older states surrender their claims to the western lands. (6-1908.)
- (d) The Mexican Cession. (6-1916.)
General Samuel Houston.
Texas.
- (e) The pioneers. (6-1905-10.)
Gateways and barriers to the West.
The Cumberland or National Road.
The Erie Canal. (6-1914;
13-4881-88.)
New states added to the Union.
Kit Carson. (18-6425.)
Daniel Boone. (6-1906, 2189-95.)
James Robertson. (6-1906, 1907,
2196-97.)
- (f) The Oregon Dispute. (6-1918.)
"Fifty-four Forty or Fight."
- (g) California and the Discovery of Gold. (6-1921-22.)
Its effect on the West.
The Santa Fé Route.
- (h) The Mormons and Salt Lake. (6-1920-22.)

5. THE MEXICAN WAR. (6-1918-20.)

- (a) Causes.
- (b) Chief events.
- (c) Results.
On a map of the United States and Mexico show the locality affected by this war.

6. THE GREAT CONFLICT.

- (a) Introduction of slavery into the United States. (2-546.)
- (b) Development of slavery in the North. 6-1912.)
Died out because not economically valuable.
Development in the South.
Flourished in cotton-raising districts.
- (c) Influence of invention of cotton-gin. (6-1912.)
- (d) Slavery situation in 1820. (Equal number of slave and free states.)
Desire of both to gain lead.
- (e) Legislation concerning slavery. Ordinance of 1787.

Indicate the states that were later made from this territory. Trace the journey of Lewis and Clark. (5-1703; 18-6426.) Tell their story. How was Florida added to the United States? (6-1910.) What adjustment was made of the "western claims" of the states? (6-1908.) What and how much territory was involved in the Mexican Cession? (6-1916.) Describe the means by which pioneers traveled toward the West. (6-1905-10.) What were some of the routes they followed? What was meant by "Fifty-four Forty or Fight"? (6-1918.) What was the outcome? What discovery in California hastened the movement toward the West? (6-1921-22.) What people settled Salt Lake City? (6-1920-22.) How did they make a desert land fertile? What do the names Daniel Boone (6-1906, 2189-95), Kit Carson (18-6425) mean to you?

What were the causes of the Mexican War? (6-1918-20.) What were the most important battles? Tell the story of Scott's campaign. What were the results of this war?

When was slavery introduced into America? (2-546.) How? Why did slavery become so powerful in the South and not in the North? (6-1912.) What influence had the invention of the cotton-gin upon slavery? (6-1912.) What situation existed in 1820 in regard to slavery? What important pieces of legislation were passed in the effort to solve the slavery problem? (6-1914.) Who were Henry Clay (10-3490, 3492), John C. Calhoun (10-3492), Daniel Webster (10-3492, 3494)? For what issues did they stand? What was "squatter sovereignty"? (7-2429.) What question was raised at each addition of territory? (7-2428.) What part did William Lloyd Garrison play in the anti-slavery agitation? (7-2429; 11-3939.) What was an aboli-

COURSE OF STUDY

COURSE OF STUDY

- Missouri Compromise, 1820.
(6-1914.)
Henry Clay. (10-3490, 3492.)
John C. Calhoun. (10-3492.)
Daniel Webster. (10-3492, 3494.)
- (f) Each addition of territory meant renewed controversy over whether it should come in as a free or slave state. (7-2427-28.)
Growing feeling.
Fugitive Slave Law. (7-2428.)
William Lloyd Garrison.
(7-2429; 11-3939.)
Kansas Nebraska Act.
(7-2429.)
John Brown's Raid. (7-2430.)
Influence of "Uncle Tom's Cabin." (7-2429.)
- (g) Election of Lincoln. (3-1047; 7-2430-32.)
Secession of Southern states.
Influence of States' Rights.
Fort Sumter fired upon.
- (h) The Civil War. (7-2432-44.)
1. Advantages possessed by the North.
Nearly all manufacturing establishments were located in the North.
Greater wealth.
Greater male population.
 2. Advantages possessed by the South.
Better prepared for immediate conflict.
Had many capable and experienced generals.
 3. Northern objectives.
Splitting the Confederacy by a drive down the Mississippi.
Cutting off the supplies of the Confederacy by a blockade of the southern ports.
Capture of the capital of the Confederacy, Richmond.
Saving the border states for the Union by early occupation by federal troops.
 4. North on the offensive.
South on the defensive.
 5. The Crisis. The great peril—disunion.
 6. First Years of the War.
(a) The northern blockade of southern ports.
The Alabama incident.
Blockade runners.

QUESTIONS

tionist? (7-2428.) What had Mrs. Harriet Beecher Stowe to do with slavery and the Civil War? (7-2429.) What was the Kansas-Nebraska Act? (7-2429.) What effect had John Brown's raid upon public feeling? (7-2430.) What were the Lincoln-Douglas debates? (3-1046-47.) What was the doctrine of States Rights? What events precipitated war? (7-2430-32.) What advantages were possessed by the North? By the South? (7-2432.) What were the chief objectives of the North? Draw a map showing conditions at the beginning of the Civil War. Indicate free and slave states. Show the principal southern seaports, the southern and northern capitals, and the Mississippi River.
(NOTE. Read 7-2432-44 for information necessary to answer all the following questions on the Civil War and Reconstruction. Life of Abraham Lincoln 3-1045-50; 11-3942.)

What was the greatest danger that threatened the Union? What success had the northern plan to blockade all southern ports? What made it difficult to carry out this aim? What were the effects of the blockade on the Confederacy? What was the Alabama incident? Tell the story of the encounter of the Monitor and the Merrimac. What results had this battle? What was the result of the attempt to capture Richmond? What did Grant accomplish on the Mississippi? Describe Farragut's success at New Orleans. What was the Emancipation Proclamation? What were its effects? What was the decisive battle of the war? Tell the story of Vicksburg's capture. What events led to the defeat of the Confederacy? What was Sherman's march to the sea? Who defended Richmond gallantly? With what general do we associate Shenandoah? Why? Where did the final surrender of the Confederacy take place? What terrible blow fell upon the country? What unfortunate results had this event? Describe the condition of the South at the close of the war. What were some of the chief problems of the Reconstruction Period? What unhappy situation arose in Congress? Who were carpet-baggers? How were these troubles finally ended?

COURSE OF STUDY

QUESTIONS

Effects of the blockade on the Confederacy.

Monitor and Merrimac.

(b) Northern plan of war on land.

To capture Richmond.

McClellan's Peninsular

Campaign fails.

To divide the Confederacy at the Mississippi.

Grant takes Forts Henry and Donelson.

Farragut captures New Orleans.

Emancipation Proclamation.

Its effect at home and abroad.

7. The Turning Point.

Failure of Union Army plans.

Pope.

Lee at Antietam.

Gettysburg. Decisive battle.

Capture of Vicksburg.

Chattanooga.

8. Defeat of the Confederacy.

Sherman's march.

Grant in command of all armies.

Richmond defended by Lee.

Sheridan in the Shenandoah.

Surrender of Lee at Appomattox.

Disbanding of the armies.

Lincoln assassinated.

Cost of the war.

9. Reconstruction problems.

The Constitutional amendments.

The quarrel between the President and Congress.

Carpet-bag government.

Political rights restored to southern leaders.

Troops removed. (President

Hayes.) (11-3943.)

7. RAPID GROWTH AND DEVELOPMENT OF THE NEW UNION.

Grant to Coolidge. (11-3943-50; 8-2669-74.)

Effect of inventions on transportation and industry.

(a) Transportation.

1. Railroads. (5-1618; 2-405-420.)

First road, the Union Pacific. (18-6432.)

Rapid increase of number of railroads in the United States.

Effect on Western Immigration.

2. Steamboat and steamship.

(17-6397-6408.)

Trace the history of the development of transportation on land from the days of primitive man up to the present. What was the first railroad built across the United States? When? (18-6432.) What effect had the rapid increase in the building of railroads upon western immigration? Trace the history of the development of transportation on water from the log and dugout canoe up to the ocean-liner. (11-3909-20, 4086-88; 17-6397-6408; 12-4415-33.) In what various ways by land and water did pioneers cross the country? What improvements have been made in agricultural implements? (19-7209-11.) Who were the following? For what are they famous?

COURSE OF STUDY

COURSE OF STUDY

3. Panama Canal. (1-360-67.)

Review the history of transportation in the history of the means of travel used by the pioneers.

(b) Improvement in methods of agriculture and industry.

1. Agriculture. (19-7209-11.)

Plow. From the crude, primitive crotched stick to the gang plow.

Harvester. McCormick Reaper. Combined reaper and thresher.

Present farm problems. Distribution.

2. Industry.

Importance of the steam engine.

James Watt. (5-1612.)

From the spinning-wheel to the power loom.

The sewing-machine. Elias Howe. (19-7213.)

Improved processes in the steel industry. Bessemer. (19-7207; 6-1939.)

(c) Improvement in methods of communication.

Telegraph. Morse. (17-6238.)

Telephone. Bell. (17-6242-44.)

Atlantic Cable. Field. (12-4293-94, 4296.)

Wireless. Marconi. (4-1254; 17-6247.)

(d) Increase in commerce and growth of cities.

8. FURTHER TERRITORIAL GROWTH. (10-3582-96.)

(a) Purchase of Alaska. (10-3583-84; 16-5789-95.)

(b) The Philippines.

(c) Porto Rico.

(d) Hawaii.

(e) Guam, Virgin Islands, American Samoa.

9. THE UNITED STATES AS A WORLD POWER.

The world grows smaller. The United States brought constantly into contact with other nations because improved methods of communication lessen distances.

(a) The Venezuela Affair. (11-3944.)

(b) The Spanish-American War. (11-3944; 8-2672.)

Causes, results.

QUESTIONS

James Watt (5-1612), Cyrus McCormick (19-7210), Elias Howe (19-7213), Eli Whitney (19-7205; 6-1912), Sir Henry Bessemer (19-7207; 6-1939), Morse (17-6238), Bell (17-6242-44), Field (12-4293-94, 4296), Marconi (4-1254; 17-6247)? Contrast the means used to send news in Washington's time with that of the present. (5-1698.) How was woolen cloth woven in colonial times? How is it done to-day? (15-5585-88.) What effects have these inventions had upon our national life and growth?

What territorial additions have been made to the United States during the last sixty years? By what means was each one acquired? (10-3582-96.)

Why do we say that the "world grows smaller"? What was the Venezuela affair? How was it adjusted? (11-3944.) What were the causes of the Spanish-American War? (11-3944.) The results? (8-2672.) How was the United States brought into affairs of the East? What was the Boxer Rebellion? (2-433.) What use was made of the indemnity granted to the United States? Who was John Hay? What part did the United States play in the Russo-

HISTORY, 8th GRADE

COURSE OF STUDY

QUESTIONS

- (c) The United States in affairs of the East.
Boxer Rebellion. (2-433.)
Indemnity used for Chinese students in America.
The Russo-Japanese Treaty. (8-2672; 2-566.)
- (d) The World War. (8-2672-74.)
Results.
League of Nations.
World Court.

Japanese treaty? (8-2672; 2-566.) How was the United States brought into the World War? (8-2672.) What is the League of Nations? (8-2674.) What is our standing in relation to the League? What are some of the problems that now confront the League?

10. INTERNAL PROBLEMS.

- (a) Tariff Revision. (11-3937-50.)
- (b) Income Tax. (13-4555.)
- (c) Postal Savings Banks.
- (d) Parcel Post.
- (e) Trusts. Anti-Trust Laws.
- (f) Federal Reserve.
- (g) Conservation Movement.
Theodore Roosevelt. (11-3949; 19-7196-98.)
- (h) Immigration.
History of Immigration. (9-3218-20.)
Present problems. (12-4152.)
The Quota Law. (11-3950.)
- (i) Labor.
History of its organization.
Present problems. Strikes.
- (j) Suffrage. Now universal.
- (k) Civil Service Reforms. (19-7196.)
- (l) Education. State and federal aid. (9-3220.)

Make out a summary showing the story of tariff in the United States. (11-3937-50.) What is "tariff for revenue only"? (13-4555.) What is the Income Tax? (13-4555.) When was it first imposed? (11-3949.) Visit your nearest post office and learn details of the Postal Savings plan. Of the Parcel Post. When were these governmental services inaugurated? How did the great corporations or trusts rise to power? What legislation has been passed in the attempt to control them? What is the Federal Reserve? What is the Conservation Movement? With what president's name do we associate it? (11-3949; 19-7196-98.) What is one of our great natural resources that it aims to protect? (8-2803-10.) Trace the history of immigration from colonial days to the present. (9-3218-20; 12-4152.) What are some of the present-day immigration problems confronting the United States? (12-4152.) What factors led to the organization of labor? (7-2294.) What are some of the present labor problems? Are strikes an economical way of settling labor disputes? What other means might be employed? Look up the last four amendments to the Constitution. (Vol. 20-7578-79.) Tell the object of each one. What Civil Service reforms have been instituted?

CIVICS, 8TH GRADE

COURSE OF STUDY

QUESTIONS

1. SERVICES GIVEN US BY OUR GOVERNMENT.

- (a) Public Regulation of Work.
Why necessary (bad factory conditions affecting both worker and product).
Reasons for special legislation (protection of health, morals, etc.).

Why is it desirable to regulate working conditions? What evils resulted when this was not done? (7-2294.) What duty does the government owe the workers within its borders? What part does the national government take in the regulation of work? The state government? What activities fall within the duties of the Department of

COURSE OF STUDY

COURSE OF STUDY

- Federal activity. (Department of Labor.)
State activity.
- (b) Regulation of Commerce.
Why necessary?
How carried out?
- (c) Guarding Public Health.
At ports.
In food.
- (d) Protecting Public Safety and Well-being.
By excluding undesirable characters.
By regulation of mails. (8-2658.)
By apprehending offenders against federal laws.

2. KINDS OF LAW.

- (a) Constitution—Fundamental principles.
- (b) Statutes—Laws in detail.
- (c) Law-making bodies.
In the nation.
In the state.
- (d) How laws are made.
- (e) How the Constitution is amended.
All this has to do with the Legislative branch of our government.
In every phase of government whether national, state or local, we find three departments—Executive, Legislative and Judicial. Trace each one in the nation, the state, and in your local community.

3. FINANCING OF THE NATIONAL, STATE AND LOCAL GOVERNMENT.

- (a) Sources of revenue.
(b) Department of the Treasury.

QUESTIONS

Labor? (5-1792.) How does the federal government protect the health of the people of the United States? What are pure food laws? What classes of people may now enter the United States? What control is exercised over the mails? (8-2658.) Why?

How the United States is governed. (5-1787-93; Constitution, Vol. 20.) What type of law is embodied in the Constitution? What are statutes? What are the law-making bodies of the state? Of the nation? Tell the story of a bill that becomes a law. How is the Constitution amended? What name is given the law-making branch of the government? What other branches are there? Show how these are found in the national, state and local government. What is the power of veto? Who has this power? Who is the chief executive of the nation? Of the state? Of your locality? What are the different cabinet positions? What are the functions of each of these departments? What services do they render to the people of the United States? Why are courts necessary? What is the supreme law of the land? What questions come before this body? What are the various types of city government? (See Index under municipal government.)

What are taxes? (13-4553-56.) How raised? What taxes are imposed by the federal government? By the state? By your local government? How are these assets collected and administered.

For General Articles on Civics, see Vol. 20-7597-98.

Additional References:

- How a Great City Gets Its Water Supply. (14-5055-60.)
Modern Fire Fighting. (9-3157-69.)
What a Great City Does for Children. (15-5621-28.)
How Garden Cities Differ from Other Cities. (7-2612.)
The Work of Forest Rangers. (8-2803-10.)

TESTS (HISTORY, 8TH GRADE)

FALSE-TRUE

Place a plus (+) before those statements which you consider correct.

Place a minus (—) before those which you consider untrue.

1. Thomas Jefferson's plans placed the United States upon a sound financial basis.
2. Two great political parties arose out of the discussion as to America's conduct in foreign affairs.
3. The Whisky Rebellion was caused by opposition to the placing of taxes by the government.
4. Washington was made unpopular by his stand on French neutrality and the Jay treaty.
5. During the War of 1812 the United States had many brilliant successes on land but met with great naval defeats.
6. The War of 1812 was highly unpopular in the South but met with great favor in New England.
7. A protective tariff is a tariff for revenue only.
8. In 1820 there were in the Union eleven free states and eleven slave states.
9. The invention of the cotton-gin greatly increased slavery.
10. "Squatter sovereignty" meant that the residents of a new state or territory should decide for themselves whether their state should be slave or free.

JUDGMENT

Next to each of these statements place the letter corresponding to the answer which you think best completes it.

1. The acquisition of territory between the years 1820-60 was important (a) because the country needed more land, (b) because the great number of immigrants needed homes, (c) because it meant that either the slavery or anti-slavery party would be strengthened.
2. The North wished to blockade the southern ports because (a) they would thus be able to shut off supplies from the enemy, (b) they wished the British to sell to them instead of to the South, (c) they did not wish the English to carry news to the South.
3. The most serious issue at stake in the Civil War was (a) the freeing of slaves, (b) the preservation of the Union, (c) "states' rights."
4. The greatest blow to the South at the end of the war was (a) "carpet-bagger rule," (b) the death of Lincoln, (c) feeling in the northern states.
5. Western immigration was most increased by (a) the building of railroads, (b) the discovery of gold, (c) the giving of free lands.

GENERAL

1. Arrange these events in the order of what you consider their greatest importance to the history of the United States:
(a) Introduction of slavery into Virginia, (b) discovery of gold in California, (c) Mexican War, (d) introduction of the Spoils System, (e) Monroe Doctrine.
2. Draw a map of the United States. On it indicate the chief objectives and campaigns of the North and South during the Civil War.

SUMMARY OF HISTORY OUTLINES

FOURTH GRADE.

The First American, the Indian.
Some of Our Country's Heroes.
Customs of Dress, Travel, Homes, Newspapers and Schools of the Times.
Some Great Leaders in the World's History in Olden Times.
How the Movement for the Discovery of America Began.

FIFTH GRADE.

Exploration and Discovery.
Beginning of Colonization.
Some Early Colonies and Their Leaders.

SIXTH GRADE.

Our Heritage from the Old World.
Primitive Man.
The Ancient World.
 Egypt.
 Babylon.
 Phœnicia.
 The Hebrews.
 The Persians.
 The Greeks.
 The Romans.
 Beginning of Christianity.
Beginning of Modern Europe.
Life in the Middle Ages.
The Europe That Found America.
The Later Colonial Period.
 Conditions in England at the Time.
 Steps Toward Self-Government.

SEVENTH GRADE.

The Struggle for Control of North America.
French and Indian War.
Life in the Colonies.
Separation from England.
 Rights of Englishmen.
 Causes of the Revolution.
 The Revolutionary War.
The New Nation.
Articles of Confederation.
Breakdown of the Articles and Formation of the Constitution.

EIGHTH GRADE.

Problems That Confronted the New Nation.
The Cabinet.
Financial Measures.
Rise of Political Parties.
How America Became Involved in Foreign Affairs.
 War of 1812.
 Monroe Doctrine.
Mexican War.
Domestic Affairs. Tariff.
Expansion.
Slavery.
The Great Struggle—The Civil War.
From the Close of the Civil War to the Present.
Present-day Problems.

LITERATURE, 1ST GRADE

Average Age, 6 to 7½

Stories suitable for reading or telling to children: folk tales, nursery stories, stories of animal life, and stories of children, such as:

- The Three Bears. (16-5825.)
- Little Red Riding Hood. (18-6474.)
- Hop-O'-My-Thumb. (17-6317-19.)
- Puss in Boots. (10-3441.)
- Three Little Pigs. (1-145.)

For other suitable stories see Fairy Stories (20-7693-95.)

Poems that may be learned are:

- What Does Little Birdie Say? (3-848.)
- Twinkle, Twinkle, Little Star. (3-1138.)
- The North Wind Doth Blow. (3-1138.)
- Ding Dong Bell. (11-4120.)

Other poems that may be read to children are:

- Shut-Eye Train. (9-3108.)—Eugene Field. (13-4819.)
- Robin Red-Breast. (1-324.)—Allingham.
- Foot Soldiers. (11-4111.)—Tabb. (13-4815.)
- If Wishes Were Horses. (10-3743.)
- Music Song. (3-847.)—Blake. (12-4228.)

For other poems see Little Verses for Little People (20-7683-86) and Mother Goose Rhymes (20-7686-87.)

LITERATURE, 2ND GRADE

Average Age, 7 to 8½

Stories suitable for reading or telling to children:

- Hansel and Gretel. (6-1965.)
- The Sleeping Beauty. (19-7006-07.)
- The History of Tom Thumb. (18-6611-12.)
- Rumpelstiltskin. (11-3981.)

For other suitable stories see Fairy Stories (20-7693-95.)

Poems that may be learned:

- My Shadow. (1-101.)—Stevenson. (8-2868-69.)
- The Rock-a-By Lady. (18-6469.)—Field. (13-4819.)
- All Things Bright and Beautiful. (12-4273.)—Alexander. (12-4437.)
- Answer to a Child's Question. (1-324.)—Coleridge. (7-2353-58.)
- Little Lamb. (2-606.)—Blake. (12-4228.)
- The Wind and The Moon. (16-5711.)—MacDonald. (11-3897; 9-3199.)

Other poems that may be read to children are:

- The Baby. (2-486.)—MacDonald.
- The Moon. (7-2364.)—Follen.
- The Butterfly's Ball. (3-1008.)—Roscoe.
- I Had a Dove. (3-1142.)—Keats. (7-2492-93.)

For other poems see Little Verses for Little People (20-7683-86) and Mother Goose Rhymes (20-7686-87.)

LITERATURE, 3RD GRADE

Average Age, 8 to 9½

Stories suitable for children to read are:

- The Discontented Fir Tree. (15-5323.)
- The Discontented Pendulum. (12-4198.)
- Æsop's Fables. (See Index under Æsop.)
 - The Hare and the Tortoise. (2-539.)
 - The Fox and the Grapes. (11-3986.)
- The Ugly Duckling. (17-6096.)

For other suitable stories see Fables and Proverbs (20-7697) and Stories about Men and Women (20-7697-98).

Poems for the year are:

- Where the Bee Sucks. (3-986.)—Shakespeare. (2-722-24.)
- America. (17-6251.)
- Trees. (12-4271.)—Joyce Kilmer. (17-6394-95.)
- Travel. (3-1136-37.)—Stevenson. (8-2868-69.)

For other poems by these authors see Poetry Index under name of author.

Find out who each one of these poets was, in what country he lived, how long ago he lived and something of his life.

Other poems for reading to children:

- The Children's Hour. (14-4955.)—Longfellow. (13-4726-27.)
- The Spider and the Fly. (12-4269.)—Mary Howitt.
- Good Children Street. (9-3340.)—Field. (13-4819.)
- My Playmate. (18-6466.)—Whittier. (13-4727-28.)
- The Wind in a Frolic. (1-228.)—William Howitt.

For other suitable poems see Poems of Childhood (20-7673-74).

Learn the parts of the poems you like best by heart.
Why do you like those parts better than others?

LITERATURE, 4TH GRADE

Average Age, 9 to 10½

Stories for children to read:

- King Alfred and the Cakes. (4-1432.) (See also 4th Grade History.)
- Bruce and the Spider. (Find out something of the story of Scotland at this time.)
 - Poem about Bruce and the Spider. (15-5521.) Story of Scotland. (12-4205-10.)
- Hiawatha's Friends.
 - Legend of Hiawatha. (19-6985.) Indian Life. (1-160-65.)
- Goody Two Shoes. (9-3077.)
- Sindbad the Sailor. (19-7215-16.)
- Ali Baba and the Forty Thieves. (2-537-38.)

For other suitable stories see Myths and Legends (20-7695-96) and Nature Stories (20-7697).

LITERATURE, 5th GRADE

Stories to be read to children are:

- Robinson Crusoe. (2-665-75.)
- Story of Peter Pan. (13-4659-64.)
- Alice in Wonderland. (3-1089-98; 4-1179-86, 1333-42.)
- Pied Piper of Hamelin. (1-224.)

Poems for the year are:

- The Mountain and the Squirrel. (3-846.)—Emerson. (13-4630.)
- I Live for Those Who Love Me. (9-3274.)—Banks.
- The Fountain. (2-607.)—Lowell. (13-4728-29.)
- Robert of Lincoln. (15-5523.)—Bryant. (13-4629-30.)
- The Owl. (6-2153.)—Tennyson. (10-3469-72.)
- A Boy's Song. (2-607.)—Hogg. (12-4228; 10-3610.)
- Seven Times One. (14-4956.)—Ingelow. (12-4232.)

For other suitable poems see Poems of Childhood (20-7673-74).

Who was the author of each of these poems? To what nationality did he belong? What are some other poems by him? (For other poems by these authors see Poetry Index under name of author.)

LITERATURE, 5TH GRADE

Average Age, 10 to 11½

Stories for children to read:

- The King of the Golden River. (6-2221-28; 7-2343-50.)—Ruskin. (9-3311, 3314-16.)
- Gulliver's Travels. (3-947-56.)—Swift. (5-1619-20.)
- Christmas Carol. (17-6115-21.)—Dickens. (8-2731-37.)
- Greek Myths. (See Index under Myths, Greek.)
- Norse Myths. (15-5328-29.)

For other suitable stories see Myths and Legends (20-7695-96); Adventure Stories (20-7697); Hero Stories (20-7698-99).

Learn something of the lives of each of the authors of these tales.

Poems for the year are:

- The Village Blacksmith. (1-227.)—Longfellow. (13-4726-27.)
- Columbus. (2-485.)—Joaquin Miller.
- In Flanders Fields. (16-5924.)—McCrae.
- To the Fringed Gentian. (19-6873.)—Bryant. (13-4629-30.)
- Aladdin. (18-6468.)—Lowell. (13-4728-29.)
- How They Brought the Good News. (19-6867-68.)—Robert Browning. (10-3687-91.)
- Paul Revere's Ride. (15-5649.)—Longfellow.

For other suitable poems see Story Poems (20-7682) and Patriotic Poems (20-7678).

First find out the circumstances that called forth the writing of these poems. Then read them and get their feeling and spirit. Remember that the most important thing is to *feel* the poem and to get its picture. You can not *feel* it unless you know the meaning.

LITERATURE, 6TH GRADE

Average Age, 11 to 12½

Good stories to read are:

- Robin Hood. (2-397-402.)
- King Arthur and His Knights. (19-6941-53; 16-5823; 17-6320-23; 7-2460-61.)
- How Regulus Went Back to Die. (1-125.)
- The Little Princes in the Tower. (1-147.)
- The Story of William Tell. (19-7217-19.)
- Scottish Chiefs. (12-4319-26.)

For other suitable stories see Hero Stories (20-7698-99) and Historical Stories (20-7699-7700).

Find out something of the scene or country in which the story is located, how long ago it happened and what customs and history combined to make the time different from your own. Practice *judging* a story. Why is it interesting? Which is the best part? Which characters are most life-like?

Poems for the year:

- About Ben Adhem. (3-1138.)—Hunt.
- Old Ironsides. (4-1380.)—Holmes. (13-4728.)
- Song of Marion's Men. (11-4032.)—Bryant. (13-4629-30.)
- The Owl Critics. (7-2640.)—James T. Field.
- The Year's at the Spring (All's Right With the World). (2-607.)—Robert Browning. (10-3687-91.)
- The Soldier. (12-4273.)—Rupert Brooke. (17-6393-94.)

For other suitable poems see Longfellow (20-7667) and Songs and Lyrics (20-7677).

LITERATURE, 7TH GRADE

Average Age, 12 to 13½

Good stories to read are:

- Rip Van Winkle. (12-4481-85; 13-4559-62.)—Irving. (13-4625-26.)
- The Man Without a Country. (7-2401-08.)—Hale.
- Pilgrim's Progress. (15-5543-52.)—Bunyan. (4-1477-80.)
- Wacousta. (9-3141-49.)—Richardson. (14-5105-06.)
- Westward Ho! (14-5027-34.)—Kingsley. (11-3892, 3894.)
- Roughing It in the Bush. (16-5901-05.)—Mrs. Moodie. (14-5105-06.)

For other suitable stories see Hero Stories (20-7698-99) and Famous Books (20-7688-93).

What was the period (time) and scene of each of these stories? Some of them are by American and some by English authors. Which are English? Which American?

Poems for the year:

- It is not Growing Like a Tree. (3-847.)—Ben Jonson. (3-1125.)
- Sweet and Low. (1-322.)—Tennyson. (10-3469-72.)
- The Brook. (1-101.)—Tennyson.
- The Bells. (16-6023.)—Poe. (13-4725-26.)
- Nathan Hale. (4-1381.)—Finch.
- Slave and Emperor. (11-4111.)—Noyes. (12-4233-34.)

For other suitable poems see Historical Poems (20-7679) and Nature Poems (20-7680).

LITERATURE, 8TH GRADE

Average Age, 13 to 14½

Good stories to read are:

Treasure Island. (13-4645-53.)—Stevenson. (8-2868-69; 9-3298, 3188.)
Ramona. (1-133-40.)—Mrs. Jackson. (13-4819-20.)
The Gold Bug. (5-1899-1904.)—Poe. (13-4725-26.)
Two Years Before the Mast. (9-3357-64.)—Dana. (13-4628-29.)
David Copperfield. (8-2773-81.)—Dickens. (8-2731-37.)

For other suitable stories see Famous Books (20-7688-93).

Who was Robert Louis Stevenson? Tell something of his life and death. What other poems and stories of his do you know? What are the outstanding characteristics of his work?

What famous American author wrote the Gold Bug? When did he live? What are some of his other works?

Name some other books by the author of David Copperfield. What sort of life did he best portray?

Poems for the year:

Julius Cæsar. (11-3929-31.)—Shakespeare. (2-722-24.)
To a Skylark. (11-4034.)—Wordsworth. (7-2353-58.)
If. (6-2036.)—Kipling. (11-3899; 12-4233.)
The Daffodils. (1-102.)—Wordsworth.
The Bugle. (8-2903.)—Tennyson. (10-3469-72.)

For other suitable poems see Descriptive Poetry (20-7679-80) and Sonnets (20-7681)

Who wrote each of the above poems? What are some other poems by these authors? (For other poems by these authors see Poetry Index under name of author.)

LITERATURE, 9TH GRADE

Average Age, 14 to 15½

Good stories for reading:

The Last of the Mohicans. (1-267-78.)—Cooper. (13-4626, 4628.)
The Story of the Iliad, the Odyssey and the Æneid. (Learn who wrote each of these, and the approximate time of writing.) (6-1983-89.)
Ben Hur. (10-3745-52.)—Wallace. (13-4823.)
The Waverley Novels. (11-4069-78.)—Scott. (7-2625-32.)
Moby Dick. (15-5401-08.)—Melville. (13-4629.)
Tom Brown's School Days. (14-5149-55.)—Hughes.
Masterman Ready. (18-6757-66.)—Marryat.

For other suitable stories see Famous Books (20-7688-93) and Poems and Plays (20-7700).

Who wrote "The Last of the Mohicans"? Why is he important in American literature? What type of story did he write? What are some of his other works?

Who wrote the Waverley Novels? Learn something of Sir Walter Scott's life.

COURSE OF STUDY

Poems for the year:

Lays of Ancient Rome. (10-3639.)—Macaulay. (9-3204-05.)
The Cloud. (18-6647.)—Shelley. (7-2491-92.)
The Skylark. (16-6021.)—Shelley.
To a Waterfowl. (17-6379.)—Bryant. (13-4629-30.)
The Man With the Hoe. (8-3003.)—Markham. (14-5013.)
O Captain! My Captain! (10-3736.)—Whitman. (13-4729-30.)
Invictus. (3-1142.)—Henley. (12-4232-33.)

For other suitable poems see Historical Poems (20-7679), Descriptive Poetry (20-7679), Religious Poetry (20-7680), Immortality (20-7681), Sonnets (20-7681), Ballad Poetry (20-7682), Story Poems (20-7682), Humorous Poems (20-7682).

NATURE STUDY, 1ST GRADE

Average Age, 6 to 7½

COURSE OF STUDY

QUESTIONS

(NOTE. For pictures of animals, flowers, fruits and vegetables given below, look under their names in the index.)

1. COMMON ANIMALS.
Those known at home or in near-by surroundings.
Cat, dog, mouse, canary, cow, robin, squirrel, horse, rabbit, sparrow, goldfish, pigeon.
2. ANIMALS WE READ ABOUT.
Sheep, fox, bear, wolf, owl.
3. CARE OF PLANTS.
Seedlings.
Bulbs.
4. SPECIAL DAYS. (6-2087-95.)
Thanksgiving Day.
Christmas.
Arbor Day.
5. FLOWERS.
Aster, goldenrod, pussy-willow, rose.
Know names, general shape and color.
6. FRUITS.
Apple, peach, banana, orange.
Be able to identify.
7. VEGETABLES.
White potato, sweet potato, onion, carrot, corn.
Thanksgiving Day as Harvest Home.
8. WEATHER.
Note sunny days and cloudy days.
Winds: Strong, cold, soft, gentle.

Why has the cat no claws when she plays and sharp ones when she is angry? Why does the cat always fall on its feet? (8-2719-20.) Why can the cat see better in the dark than I can? (5-1807.) What happens inside the cat when it purrs? (18-6694.) Do cats and dogs ever cry? (17-6179.) Why does the dog turn round and round before he lies down? (4-1231.) How can you show the dog that you are his friend? How does the dog say "Thank you"? Why are the cat and dog useful animals? (2-710, 711-12; 16-5735-38.) Why do horses need to wear shoes? (15-5366.) Why does a horse wear blinkers? (9-3356.) How do the father and mother birds care for their young? (8-2760.) What thing must the plant have in order to grow? (2-461.)

NATURE STUDY, 2ND GRADE

Average Age, 7 to 8½

COURSE OF STUDY

QUESTIONS

(NOTE. For pictures of animals, birds, plants, flowers and vegetables given below, look under their names in the index.)

1. ANIMALS.
Goat, donkey, deer, lion.
(a) Teeth.
(b) Food.
(c) Hoof.
(d) Coat.
2. BIRDS.
Turkey, goose, duck, bluebird.
Why the birds go south. (8-2762.)
3. PLANTS.
Plant culture; care of plants.

What sort of food does the goat like best? (4-1377.) What is a baby goat called? What differences do you notice between the goat and the sheep? (4-1377.) How can the donkey eat a thistle, thorns and all? (6-2124.) How are both useful to mankind? (Usefulness of goat, 4-1377-78; usefulness of donkey, 6-2018-20.) How can a duckling swim without being taught? (15-5518.) Why does a duck keep dry in the water? (10-3580.) What are the differ-

COURSE OF STUDY

COURSE OF STUDY

- Nasturtium, sweet-pea, daisy.
Trees. (12-4507-15; 13-4635-43.)
Buds in spring time.
Falling leaves in autumn.
Seasons.
Names of common trees.
4. WEATHER CONDITIONS.
Weather calendar.
Observe clouds, fog, dew, ice, winds.
5. VEGETABLES.
Recognize beans, peas, turnip, beet, radish.
After soaking, plant peas and beans and observe growth.

QUESTIONS

ences between a goose and a duck? (11-3885, 3888.) Why do most of the birds leave us when the cold weather comes? (8-2762.) Where do they go? What birds stay with us? (13-4759-64.) Does a bird always sing the same song? (5-1606.) How does the bird know how to build its nest? (14-5220-21.) What weeds furnish most of the bird's food? (15-5395.)

NATURE STUDY, 3RD GRADE

Average Age, 8 to 9½

COURSE OF STUDY

1. ANIMALS.
Fishes.
Common birds of the neighborhood.
How birds help man. (8-2762.)
Beasts of burden.
Horse, ox, donkey, camel, elephant.
Kindness to animals.
2. ANIMALS AND INSECTS USEFUL TO MAN.
Sheep. (4-1369-78.)
Silkworm. (15-5312-14.)
Honey-bee. (17-6221-33.)
Fur-bearing animals.
3. PLANTS.
Care of seedlings.
Life history of a plant. (2-503-10.)
4. WEATHER CALENDAR.
Seasons. (More fully.)
Simple reasons for change of seasons. (8-2791-94.)
5. EFFECT OF LIGHT AND HEAT.
On Plant Life (2-745) and Animal Life.

QUESTIONS

Can the fish see and hear us? (11-3841-42.) Does a fish feel? (1-187.) Does he close his eyes and sleep under water? (10-3474.) How do fish live in a frozen pond? (11-3976.) Why does the fish not drown? (8-2716.) Why do fish die on land? (11-3841.) Why do they die in a jar of water? (10-3732.) In what ways are fish useful to us? (11-4051, 4057; 16-5898; 6-2216.) What bird has the longest wings? (8-2720.) Why do birds shed their feathers every year? (17-6290.) Why does a flying bird not fall to the ground? (7-2611.) In what ways are birds of value to mankind? (8-2760, 2762; 9-3288.) Name five animals used as beasts of burden. How is it possible for the camel to go so long without water? (5-1596.) How is the camel specially adapted to desert life and travel? (5-1596-98.) Where is the elephant most used? (6-2140-45.) Has he a bone in his trunk? (7-2361.) What animals are most useful to man for clothing? (4-1369; 15-5575.) For food? (4-1259-60, 1262.) Tell the life history of some plant that you have raised from seed. What will happen to a plant that has no light? No air? (2-461; 11-4093-94.) What causes change of seasons? (8-2791-94.)

NATURE STUDY, 4TH GRADE

Average Age, 9 to 10½

COURSE OF STUDY

QUESTIONS

1. PLANTS.
 - (a) Fruit trees. (6-2057-68.)
Which blossom first?
Watch the development of the fruit from the blossom.
Make a collection of leaves of trees that have been injured by insects and plant diseases.
Blight, mildew, rust, borers.
The caterpillar, an enemy. (18-6532.)
Work of the Farm Bureau.
 - (b) Evergreens. (13-4634-38.)
Contrast with deciduous trees.
Meaning of "deciduous" (trees which shed their leaves at the end of the growing season each year).
Different kinds.
 - (c) Different kinds of lumber. (12-4245-60.)
2. ANIMALS.
The chipmunk compared with the squirrel. (3-1127-29.)
Kindness to animals.
The garden toad. (15-5454.) Why he is our friend.
Life history of the frog. (15-5453-56.)
Trace this by putting eggs of the frog in your aquarium and watching the tadpole develop.

Name five of our most useful fruit trees. (6-2057-68.) Where are these most commonly grown? In what seasons do they bear? Why have many fruits stones or pits? (3-978; 7-2362.) What is the difference between a fruit and a vegetable? (18-6693.) What are some wild fruits? (11-4019-28.) Why and how does cultivation improve fruit? (4-1387-90.) What is grafting? (16-5959.) Tell the life story of the apple. (4-1387.) Why should we destroy caterpillars' nests? (18-6532.) What are some of the commonest diseases that attack trees? How do evergreens differ from other trees? (2-510; 13-4635-43.) Where are they found in greatest quantities? (13-4634-38.) What are some of the better known varieties? (12-4249-50.) What are some of the most useful kinds of lumber? (12-4245-60.) What kinds are used for houses? For furniture? Why do leaves change color in autumn? (15-5520.)

What are some of the ways in which we can show kindness to birds? (13-4837; 9-3278.) Why is the bird the farmer's friend? (8-2762.) Tell the life history of the butterfly. (18-6525-47.) Compare the chipmunk and the squirrel. (3-1127-29.) In what ways is the toad different from the frog? (15-5453-56.) Why is the toad our friend?

NATURE STUDY, 5TH GRADE

Average Age, 10 to 11½

COURSE OF STUDY

QUESTIONS

1. SEEDS AND INSECTS. (2-503-10; 17-6063-78.)
Visits of insects and developing of seed.
Bees and flowers. (17-6220-33.)
Flowers. Study of parts. (2-506; 3-1013-14.)
Seed dispersal. (3-1083-87.)
2. STUDY OF INSECTS. (17-6063-78; 18-6721-34.)

What does the bee get in the flower? Of what benefit to the flower is his visit? (17-6224.) Do insects visit some flowers more than others? (Color plates, 17-6073-76.) Why? What is the connection between the color of the flowers and insects' visits? Which insects do the greatest amount of work in pollinating the flowers? Why do some trees flower when others do not? (8-2720.) What are the parts of a simple

COURSE OF STUDY

COURSE OF STUDY

- Life history of cricket, grasshopper, katy-did, potato beetle. (18-6623-30.)
- Mouth parts and their function in feeding.
- Harmful insects. (15-5488; 18-6731-34.)
3. STUDY OF FERNS. (4-1232; 3-884.)
4. ELEMENTARY FORESTRY.
- Yearly and life cycle of a tree. (11-4093-4108.)
- Uses of forests and trees. (12-4245-50.)
- Lumber industry. (16-5985-96.)
- Regions.
- Falling.
- Logging.
- Sawing.
- The wood pulp industry. (7-2445-53.)
- Forest preservation. (8-2680, 2803-10.)
- Some animal products used for food in the city.
- Milk, butter, cheese, fish, oysters, crabs, fisheries, eggs and poultry.

QUESTIONS

flower? (2-506; 3-1013-14.) How does a fern grow? (4-1232.) In what different ways are seeds dispersed? (3-1083-87.) Can one plant produce thousands of seeds in a season? (13-4826.) Do seeds breathe as we do? (15-5519-20.) What has the seed to do with determining the color? (14-5087.) Will a seed grow after thousands of years? (8-2718.) How are the mouth parts of the butterfly adapted for securing its food? (5-1609.) Name some harmful insects and tell why you so consider them. (15-5488; 18-6731-34.) Why is it so important that we preserve our forests? (8-2680.) What connection is there between forests and water supply? Describe the history of a log to be used for wood pulp from the forest to your notebook. (7-2445-53.)

NATURE STUDY, 6TH GRADE

Average Age, 11 to 12½

COURSE OF STUDY

1. PROTECTION OF WILD LIFE—BIRDS, ANIMALS AND FLOWERS. (9-3278; 8-2814-18.)
- Life and work of Audubon. (19-7052.)
- Work of the government in creating refuges. (4-1264.)
- Need of further work.
- How the buffalo, deer and elk vanished. (4-1263, 1447.)
2. STUDY OF CEREALS.
- Study of germination and growth of wheat (5-1754-63), oats and barley (5-1851-52.)
- Advantages and food value of each, and kind of soil necessary for growth. (7-2423-25.)
- Sections where grown.
- Insects that feed on crops.
- How combated. (5-1757, 1762.)
- Study of muskrat and beaver. (3-1132-34.)

QUESTIONS

Who was Audubon? (19-7052.) Why do we specially remember him? What is our responsibility in preserving wild life? (9-3278.) Why are the wild flowers so fast disappearing from the countryside? What great refuge for animals has the government established in the state of Wyoming? (4-1264.) Tell the story of the extermination of the buffalo. (4-1263-64.) Tell the life history of wheat. (5-1754-63.) Give the plant structure and varieties of oats. What are the food values of these grains? (7-2423-25.) What are some of the insects most injurious to crops? (5-1757, 1762.) Compare the beaver and the muskrat, as to structure, food, home and habits. (3-1132-34.) Compare the dog with the fox, with the wolf. (2-597-600, 711-18.) What do we mean by "instinct" in a dog? (4-1231.) What causes dew, fog, ice, rain? (8-2921-24.) Could we live without rain? (17-6290.) Where does the rain go? (6-2249.)

NATURE STUDY, 6th GRADE

COURSE OF STUDY

QUESTIONS

The dog in comparison with wolf and fox. (2-597-600; 2-711-18.)
Natural instincts. (14-5220-21; 4-1231.)

3. NATURAL PHENOMENA.

Planets. (9-3289-93; 10-3409-14.)
Evening star. Aurora. (16-5670; 10-3704.) Etc.
Cause of dew, fog, ice, rain. (8-2921-24.)

What are planets? (9-3289-93.) In what part of the sky do we see the aurora borealis? (16-5670; 10-3704.)

SCIENCE, 7TH GRADE

Average Age, 12 to 13½

THE FOOD WE EAT

COURSE OF STUDY

QUESTIONS

(NOTE. When the answers to several successive questions are found on the same page, the volume and page is given after the last of those questions.)

1. Production.

(a) Where our food comes from.

Can the earth support all things that are born? (13-4827.) Will the world's food supply ever run short? (14-5225.) Name five important food plants in each continent. (19-7247.)

(b) The kinds of food we eat.

1. Meat.

Meat as a Food. (7-2567.)

The Great Cattle Family.
(4-1258.)

Our Domestic Poultry.
(12-4491.)

The Sheep and Goats.
(4-1369.)

Fishes of the Deep Sea.
(16-5893.)

Fishes of Shallow Seas.
(16-5772.)

Fishes of River and Lake.
(15-5629.)

How Fish and Oysters Are
Taken. (11-4051.)

Crabs, Lobsters and Their Kin.
(16-5949.)

How Meat Products Are Used.
(7-2512.)

Is it right to kill animals for food? (7-2567.) Is it possible to live without eating meat? What name do we give to people who do not eat meat? Give two arguments in favor of eating meat. (7-2568.) Why is beef becoming higher in price? Name a great beef-producing country. Where does the meat for the great cities come from? (9-3207.) What city is the world's greatest stock market? (9-3209; 19-7109.) What are some of the by-products of the animals supplying us with meat? (7-2513.) How long has man raised poultry? (12-4491.) Would you say that poultry and eggs are an important product? What are the leading poultry states? How many eggs are used in the U. S. each year? (9-3208.) What important forms of nourishment do eggs contain? Why are soft-boiled eggs better to eat than hard-boiled eggs? What is the value of fish as food? Is fish a good brain food? (7-2569.) What is the most important fish of the Atlantic? Of the Pacific? Of the Great Lakes? (11-4052.) How is it that fish are not salt when caught? (9-3100.) Name a few of our important salt-water fish. (16-5775.) Name a few fresh-water fish. What is caviare? (15-5630.)

2. Vegetables.

The Useful Vegetables.
(7-2613.)

Name three vegetables in which the seeds are contained in a pod. (7-2613.) Why has the lentil been a favorite food in Catholic countries? (7-2614.) Name three vegetables whose stems we eat. Mention three plants whose leaves we eat. (7-2616.) Why is the peanut valuable to man? (7-2614.) What is the most important of the plants whose underground stems, called tubers, we eat? (7-2618.) Why does a

COURSE OF STUDY

QUESTIONS

3. Fruit.

The Most Important Fruits.
(6-2056.)

Where Does an Apple Come
From? (11-3975.)

potato not rot under the earth while it is growing? (18-6554.) Why is the potato a valuable food? (5-1624.) Why would the constant use of potatoes as the principal food be unwise? (7-2623.) Why should we boil potatoes in their jackets? (8-2872.) What states lead in the production of potatoes? (10-3406.) What are vitamins? (5-1624.)

What is the difference between a fruit and a vegetable? (18-6693.) What is the most prized family of fruits? Name a few fruits which belong to this family. Where are most of the oranges we eat grown? (6-2057.) Why do oranges not grow in Canada? (15-5365.) Where do most of our lemons come from? Why are lemons always picked green? Why must lemons "be handled as carefully as eggs"? (6-2058.) Why are the skins of the citrous fruit valuable in confectionery? What are some of the uses to which the banana plant is put? (6-2060.) What country is noted for the growing of pineapples? (6-2062; 15-5451; 9-3301.) Why are thousands of bushels of apples allowed to rot on the ground each year in the U. S.? (6-2064.) What is the difference between a ripe and an unripe apple? (3-1016.) What states raise the most peaches? What state in the U. S. raises more prunes than any country? (6-2064.) To what uses are grapes put? (6-2060; 11-3818.) What two states supply us with the most fruit? (11-4084.) Why should we eat fruit? (6-2068; 3-1016; 6-2187.)

4. Bread.

The Wonderful Story of Wheat.
(5-1754.)

How Flour Is Made. (8-2795.)

The Bread by Which We Live.
(7-2423.)

The World's Bread and Butter.
(1-371.)

Why is bread called the "staff of life"? (8-2795.) What two foods could keep us alive for a long time? What is meant by the expression in the Bible that "all flesh is grass"? (7-2423.) Describe a grain of wheat. (8-2795.) What makes wheat so valuable for the baker? (5-1758.) What country raises the most wheat? (8-2678.) Name some other important wheat-growing countries. (5-1760.) What is meant by "spring wheat" and "winter wheat"? Why do Kansas farmers plant wheat in the fall? Why do North Dakota farmers plant wheat in the spring? Why is the wheat farmer not sure of a big crop? What part of the U. S. is noted for wheat-raising? (15-5278.) How is wheat harvested? (1-374.) How was the grain ground before modern times? (1-372.) By what power was the mill-wheel turned in the time of the Ro-

COURSE OF STUDY

QUESTIONS

mans? (8-2796.) How is flour made by modern methods? (8-2798; 1-376.) What city is noted for the manufacture of flour? (15-5280.) How do they manufacture, pack and store flour? (8-2797; 1-376.) How is the bread we eat baked? (1-372.) Why is bread so valuable? (7-2423.) What two important substances does good bread contain? Why is new bread more indigestible than old? (7-2486.) Is the whitest bread the purest? (7-2423.) Why should we eat the crusts of bread? Why should we eat bread with cheese or butter? (7-2424.) Why is bread and butter a perfect food? (1-373.)

5. Cereals.

The Great Cereals. (5-1850.)

Name five important cereals grown for food. (5-1850.) What is the greatest of the cereals? (5-1851.) What two important substances do oats contain? Why is oatmeal and milk an excellent breakfast food? (7-2425.) What is the great disease of the oat? (5-1851.) What grain will flourish where the others perish? For what is the greater part of the barley crop of the world grown? Why is rye called "the grain of poverty"? Why is it good for the making of bread? (5-1852.) Why is rice inferior to wheat as a food? (7-2424.) What does rice lack? What is "paddy rice"? Why is it better than the rice you buy from the grocer? (5-1856.) What peoples are great eaters of rice? (5-1854.) What country grows the best rice in the world? (5-1855.) What country is the greatest producer of corn? (5-1856.) What three qualities make corn a very desirable food? (7-2424.) To what other great use is corn put besides as food for man? (5-1856; 7-2412; 15-5282.) What is the great enemy of corn? (5-1856.) Name the states in the Corn Belt. (15-5280.) What is corn sometimes mixed with to make bread? (1-372.) Why might we truthfully say that "corn is the principal source of food of the American people"? (15-5282.)

6. Milk, sugar, tea, coffee, cocoa.

Plants of the Breakfast Table. (7-2531.)

Where Sugar Comes From. (10-3415.)

How Coffee Comes to Us. (6-2177.)

The Story in a Teacup. (2-760.)

Why is goat's milk valuable? (7-2323.) From what is sugar obtained? (7-2531; 10-3415; 10-3420.) What took the place of sugar in olden times? (10-3415; 17-6221.) What things contain sugar? How is sugar made from the sugar-cane; from sugar-beets? (10-3416.) What countries produce sugar? (10-3415, 3418; 7-2531.) Why is sugar sweet? (1-310.) What are the following: lactose, glucose, saccharose?

COURSE OF STUDY

QUESTIONS

Finding out How Milk is Handled. (10-3508.)

Is sugar a valuable food? (10-3416.) When was tea first used? Which are the chief tea-raising countries of the world? (2-761.) Can tea be raised in the U. S.? (2-762.) How do teas get their names? (7-2536.) Describe how the tea is treated at the factory. (2-762.) Which countries use the most tea? (2-761; 7-2532.) Why do they say that strong tea is bad for us? (5-1607.) Why do tea and coffee keep us awake? (4-1451.) What country is noted for the production of coffee? (7-2536; 6-2177.) Is cocoa good for us? (15-5366.)

7. Salt, spices, etc.

A Grain of Salt. (3-925.)
The Spice Plants. (8-2990.)
Figs and Dates. (6-2157.)
Mushrooms, Edible and Poisonous. (11-3904.)

What country produces a great deal of salt? (3-926; 4-1402; 17-6040; 9-3212.) What are some of the uses to which salt is put? (3-926.) How is salt obtained for our use? How is salt made fit for our use? (3-927.) What is the most common spice? Where is the plant found? Mention a few other spices. (8-2991.) What two fruits are noted for their high food value? (6-2157.) What is the home of the date? (6-2157; 5-1624.) Name three uses of the date-palm besides that of food. (5-1624.) Where is the fig grown in abundance? (6-2158.) What state in the U. S. produces a very large crop of figs? (6-2162.) Why is it important to know mushrooms? What are the ways of telling good mushrooms? (11-3907.) What varieties are edible; what are poisonous? (10-3723; 11-3907.)

2. Selection.

(a) A balanced diet.

Food and Its Uses. (6-2185.)
How to Eat. (6-2083.)

Why do we eat? (6-2086; 18-6694.) What makes us hungry? (5-1808.) Why is the body like a furnace? What important fuel is used by the body? Where is this fuel made? (6-2185.) What is the most important use of food? What are the things that our bodies receive daily from the outside world? (6-2186.) Does the brain need food? (5-1811.) Why do we cook the food we eat? (4-1451; 11-3842.) What three foods make up the chief part of our diet? What food burns away our bodies? What food rebuilds our bodies? (6-2187.) What foods are particularly necessary for children? (6-2188.) Why are children so fond of sugar and sweet things? (6-2187; 10-3416.) When may a boy require more food than a man? What would be the average diet for a man? What are some of the things that determine how much food we should eat? (6-2188.) Why is a big meal a bad thing for an exhausted person? (12-4503.) What happens to our

COURSE OF STUDY

QUESTIONS

food when it reaches the stomach? (6-2083.) What two secretions help to digest the food in the stomach? How do these secretions act on the food in the stomach? What does our stomach do for us? (6-2084.) Could we live without a stomach? (6-2085.) What makes the food move in the intestines? (6-2085.) What are the following: hydrochloric acid, pepsin (6-2084); stomach (6-2083); bowel, pancreas (6-2085); bile (6-2086); calorie (18-6694)? How does the food get into the blood? What are the following: capillaries, lacteals? (6-2086.) What is the source of the whole strength of our food? (7-2425.) Name the best foods which contain protein; fats. (7-2569.) What is meant by the statement that we live not by what we eat, but by what we absorb? (6-2086.) Does the food that weighs the most contain the most nourishment? Is the food that costs the most the healthiest? (7-2423.)

3. Preservation and care in the home.
 - (a) Methods of preserving:
 1. Canning.
 2. Preserving by sugar; by salt.
 3. Dehydrating.
 4. Pickling.
 - (b) Care of meats, milk and vegetables for immediate use in the home.
How to Keep Fruit Fresh. (11-4084.)
 - (c) Methods of caring for the home refrigerator.
Home observations and reports on the above topics.

What causes fruit to spoil? (11-4084; 2-437.) Why does milk turn sour? (17-6174; 2-557; 7-2326.) Why should milk be pasteurized? Why should care be used in the handling of milk? (10-3508.) Why should fruit be handled carefully? Should fruit be ripe when gathered? (11-4084.) Why should milk be kept cool? (10-3508.) Where should fruit be kept? (11-4084.) Describe two ways in which beans are preserved. (7-2614.) Mention at least two ways in which fruit is preserved. How is the preserved fruit sterilized? Why is this done? (11-4084.) Who started the idea of cold storage? (5-1607.)

THE WATER WE DRINK

1. Sources.
 - (a) Oceans, rivers, lakes, springs, wells, reservoirs.
The Rivers and the Seas. (7-2537.)
Where Does the Rain Go? (6-2249.)
How Fire and Water Made the World. (2-525.)

Is there any water in the sun? (6-2122.) Is there any water anywhere except in our world? (14-5222.) How much water is there in the sea? (10-3578.) How deep is the sea? (3-875.) Can fresh water be found in the sea? (2-584.) What do rivers do besides supply us with water? (7-2537.) What countries are made of river mud? Why did the old Egyptians worship the river Nile? What are the five greatest rivers in the world? How are lakes formed? What is the largest lake in the world? What kind of water has it? (7-2538.) What are the largest fresh-water lakes in the world? (7-2484.) Where does spring water come from?

COURSE OF STUDY

QUESTIONS

2. Uses.

- (a) Drinking, cooking, cleansing, sanitation, transportation, fires, pleasure, gardens, etc.

The Rain That Raineth Every Day.
(8-2921.)

A River Under a City. (14-5055.)

(6-2249; 15-5620.) Why is spring water very good to drink? (15-5620.) What are artesian wells? Where are artesian wells possible? (6-2249.) What is a reservoir? Name a few large reservoirs. (14-5055.)

Why must our lives be lived in running water? Why can man go without food for many days, but not without water? Why do children need a frequent supply of water? (6-2186.) Is it harmful to us to drink rain-water? (1-310.) Why are we sure that pure water has no taste? (14-5225.) Why did ancient civilized nations inhabit regions about large bodies of water? How does the presence of bodies of water help manufacturers and farmers? What large cities in the U. S. started on large bodies of water? (13-4881.) What are the uses of the sea to man? (12-4145.) Why does water put out fires? (11-3979.) If the gases in water make fire, why does water quench it? (15-5614.) Why does a light go out in water, but flare up in gasoline? (10-3729.) What will water do to burning oil? (10-3772.) Why do people seek the shores of the ocean? (12-4146.)

3. Protection from pollution.

- (a) Water-shed protection.
(b) Aeration stations.
(c) Filter-beds.
(d) Keeping well-water free from contamination.
(e) Boiling.
(f) Distillation.
(g) Chemical treatment.

Why must cities go far away for their water supply? What is the disadvantage of going far for water? What would happen if the water supply of a large city stopped even for a day? (14-5055.) What are the lakes of water called? What is the wall that helps to form the lake called? (14-5056.) How is the water brought to cities? (14-5059.) What is there in impure water that makes it dangerous to drink? (8-2872.) What disease germ in particular do we swallow with impure water? (8-2872; 2-559.) What are aerators? What do they do to the water? (14-5057.) Why is a running stream purer than a stagnant pool? (14-5084.) Why should we filter water, especially in the country? How can you make a filter? (18-6781.) How do chemicals help to purify water? (14-5060.)

4. Water power.

Water Power of the World.
(15-5429.)

Why is swift water called "white coal"? (15-5429.) What do we mean when we say we have harnessed a stream? (9-3212.) What nation used water power 2,500 years ago? (8-2796.) In what countries of the world has water power been used for hundreds of years? (15-5429.) What is the greatest water power at present? What countries in Europe are rich in water power?

COURSE OF STUDY

QUESTIONS

5. Properties of water.

- (a) Specific gravity, specific heat, evaporation, surface tension, buoyancy, pressure, freezing, etc.
 The Size and Weight of Things. (14-5035.)
 Simple Experiments with Air and Water. (19-7083.)
 The Magic of a Glass of Water. (2-622.)
 A Fairy-fountain Experiment. (2-627.)

How does the U. S. rank in water power? Name a few cities whose power is derived from water. What continent has the most water power? (15-5430.) Can we make the tides work for us? (18-6558.) Do the waves give us water power? (15-5433.) For what purpose was water power formerly used? (15-5429.) In what other industry besides manufacturing is water power important? (15-5433.) What valuable part is played by water power in modern life? (7-2538; 15-5429.)

Why do we use water as a standard for measuring weights? (14-5036.) At what temperature is water the densest? What is the specific gravity of water? With what instrument can we find the specific gravity of any liquid? Why would that be important in the case of milk? What can a bottle of water teach us? (14-5037.) Why does not oil mix with water? (11-3842.) Why does oil float on the surface of water? (6-2125.) When water is boiling why can it not be made hotter? (13-4595.) Why does boiling water feel cold when we put our hand in it? (14-4950.) Why does boiling water make bubbles? (2-686.) Can we boil water in a paper box? Why? (2-623.) Why does a full bottle keep hot longer than one half full? (10-3475.) Why does the teapot keep hot so long? (16-5663.) Why does hot water take up more room than cold? (16-5960.) Why does a wet plate get dry if we leave it alone? (3-981.) Can a needle float? Why? (2-623.) How does a soap bubble hold together? Can we fill a tumbler of water above the brim? Why? (3-979.) Why is it easier to swim in sea-water than in fresh water? (14-5038.) In what directions do liquids exert pressure? (19-7084.) Will water flow upward? What is the principle on which the siphon works? (2-622; 15-5365.) Why is the bottom of a dam thicker than the top? (14-5055.) What are some of the uses to which water pressure is put? (15-5432.) What is the advantage of a storage reservoir's occupying an elevated position? (15-5429.) Why does water find its own level? (4-1229.) Why is the surface of the water always level? (16-5844.) Why is a snowflake lighter than a raindrop? Why does water sometimes burst pipes in winter? (9-3101.) Why does an iceberg float? (4-1355.) Why is it that the sea does not freeze? (11-3978.) Why does

COURSE OF STUDY

QUESTIONS

6. Ice.

- (a) Sources, kinds, uses.
How We Get Our Ice. (2-529.)

shallow water freeze first? (8-2874.) Do we get a pound of ice from a pound of water? (14-5086.) Why does water always seem shallower than it is? (2-688.) What makes the water ripple when we throw a stone into it? (14-5221.) Why does water stay in a revolving pail? (5-1609.)

What is ice? (12-4277.) What difference does ice make in our comfort and in our health? What two kinds of ice are used in refrigerators? Where does natural ice come from? (2-529.) How thick must the ice be before cutting? How does the ice come to town when needed? (2-530.) Where is the ice stored during the summer? (2-531.) How is artificial ice made? (2-532.) Why do we find ice slippery? (7-2362.) Why does a piece of ice make a drink colder? (13-4827.) What are cold-storage warehouses? Why is cold storage a good thing for us? (2-535.)

THE AIR WE BREATHE

1. Composition and extent of the air.
Could We Reach Another World?
(4-1353.)

What is the air made of? (12-4504.) Is the air part of the earth? How high does the air go? What happens to the air as we go up? (1-143.) If we could go on traveling upward, where should we end? (17-6175.) Could we reach another world? (4-1353.) Where does the oxygen in the sun come from? (14-5225.) Why do the hills look blue at a distance? (9-3102.) Why does the air not stop the light of the sun? (15-5620.) How much water can air hold? (8-2921.) Does the air ever get used up? (1-312.)

2. Importance of air.
Life and the Lungs. (4-1325.)
Some Exercises to Practice at Home.
(15-5332.)
What to Do in Cases of Drowning.
(17-6147.)

What is the real name for breathing? What do we breathe in from the air? What do we breathe out into the air? (4-1325.) How is the air filtered as it comes into the lungs? What is important for us to remember? (4-1326.) What are the following: the lungs (4-1329); the diaphragm (4-1326)? Is oxygen a food? Do people suffer from "air-hunger"? (6-2186.) Do trees breathe? (11-4093.) What part of the air do trees use? (11-4094.) Does a rock breathe? (9-3102.) Do fish need oxygen? Can man get oxygen out of water? (15-5540.) What happens when we have a choking fit? How may we save ourselves? (4-1328.) Why should we wear our clothes

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

3. Ventilation.

Our Unseen Friends and Foes.
(2-557.)

loose and not tight? (4-1329.) Perform a set of exercises that will keep you in good health. (15-5332.)

What is the most common poison for us? (3-806.) What is foul air? (4-1329.) How is one able to tell when the air in a room is bad? (4-1330.) What microbes are more destructive than snakes and tigers? Where do these microbes hide? What is the enemy of these microbes? (2-557.) Why should people sleep with their windows open? Why does sleeping out of doors benefit a person? (4-1331.) Where does the bad air go? (4-1453.) Is impure air lighter than pure air? (18-6692.) Is night air bad for us? (12-4278.) Why does damp air often make us ill? (12-4400.) Why are miners not killed by bad air? (2-460.) What should be done with the air in shops, factories and places where there are many people? (4-1331.)

4. Air Pressure.

The Pressure of the Air. (15-5285.)
How to Feel the Pressure of the Air.
(18-6784.)
Simple Experiments with Air and
Water. (19-7083.)

We really live at the bottom of an ocean—of what? In what way are water and air alike? How are they different? (15-5285.) Has the air weight? (19-7083.) Describe a simple experiment to prove it. (19-7083; 18-6784.) In how many directions does air exert pressure? What experiment would prove this? (19-7083.) Could we breathe without atmospheric pressure? (15-5285.) If air exerts pressure, why do we not feel it? (15-5288.) Who discovered that air exerts pressure? How high will water rise in a pump? Why? If we fill a glass tube, closed at one end, with mercury, and turn it upside down in a cup of mercury, what will happen to the mercury inside the tube? What is the opposing force that holds it up? What fills the space in the tube above the level of the mercury? What do we call such an empty space? How can we measure the pressure of the atmosphere? What happened to a tube of mercury on a mountain? (15-5286.) What relation does atmospheric pressure have to weather? What is the name of the instrument that measures atmospheric pressure? (15-5287.) Are there barometers made without using mercury? What is suction? Why does soda water run up a straw when you draw on the straw? How does an ink-dropper work? Why does the ink not run out? (15-5288.) Explain how a lift-pump works. Who discovered the law of equal pressure? How can we prove that air exerts an equal pressure in

COURSE OF STUDY

QUESTIONS

5. Liquid Air.

all directions? What is Boyle's Law? (15-5289.) Who is the man that fastened two things together with nothing? (4-1244.) What is a siphon? (15-5365; 2-622.) How does it work? What would be the effect of lengthening the long arm of a siphon? (15-5365.) How and why can a glass of water be inverted with the aid of a card without spilling the water? (19-7083.) What do scientists mean by the term "millibar"? (14-4952.) How does the pressure of air affect the boiling-point of water? (12-4277.) What is the specific gravity of air? Why does a balloon rise? Why will it not go up forever? (14-5038.)

What is liquid air? What is it used for? What happens to it? What does solid air look like? (15-5425.)

6. Balloons, Airships and Airplanes.
 The Riders on the Wind. (1-167.)
 Making a Hot-air Balloon.
 (10-3770.)

When were balloons first used? Where? What is the disadvantage of traveling in a balloon? For what purposes have balloons been used? (1-167.) Who is the founder of the airship? What are these ships now called? Are these ships lighter or heavier than air? What were airships used for during the war? Mention one notable flight of an airship. (1-168.) Mention one disaster. (1-178.) Is it likely that airships will be used instead of ocean liners? (1-168.) Who is the father of the flying-machine as we have it to-day? Is this machine lighter or heavier than air? (1-168.) Who were the brothers that perfected the airplane? When was this accomplished? Why was their invention hailed with great excitement? (1-170.) What is a hydroplane? Why is it that the higher an aviator goes the safer he is? How do aviators keep from falling? How high may an aviator fly? (1-172.) What was the influence of the World War on flight? (1-173.) What quality must a successful aviator possess? Why do aviators lose their sense of balance in the air? Why was the airplane so valuable in the War? What improvements have been made since the War? What notable achievements have been accomplished with airplanes? What will determine the speed at which man may fly? (1-174.) In what ways is the airplane very useful at present? (8-2658, 2808.)

TESTS (SCIENCE, 7TH GRADE)

Here are 30 easy questions. Answer 25. Count 4 for each correct one.

FALSE-TRUE

If the statement is true put a check after it; if false put a cross.

1. Ice-cream produces heat.
2. An expensive food is more nourishing than a cheap food.
3. A meat diet is unhealthful.
4. Food should be well chewed.
5. Boiled water is safe to drink.
6. It is easier to swim in fresh water than in sea-water.
7. When oil and water are mixed, the oil sinks to the bottom.
8. The higher up we go the heavier the air becomes.
9. Impure air is heavier than pure air.
10. The higher an aviator goes the safer he is.

COMPLETION

Fill in the proper word or words.

1. If one is overweight he should not eat
2. The organisms which cause food to spoil are called
3. We should drink only milk that has been
4. The most dangerous source of water pollution is
5. A person can go without for many days, but not without
6. Water always seeks its own
7. Boiling water be made hotter.
8. We breathe in and we breathe out
9. and are the enemies of microbes.
10. A balloon rises because

SELECTION

Each sentence talks about three things. Only *one* of the three is correct. Draw a line under the correct one.

1. In the summer we should eat plenty of (meat; vegetables; ice-cream).
2. An important fresh-water fish is (trout; cod; halibut).

TESTS

3. (Argentina; Cuba; Brazil) is noted for the production of coffee.
4. (Sweden; Mexico; Holland) is rich in water power.
5. An artesian well supplies (oil; water; gas).
6. An aerator is a place where (sewage is disposed of; water is purified; milk is pasteurized).
7. Trees breathe (oxygen; nitrogen; carbon dioxide).
8. Microbes like (sunshine; darkness; fresh air).
9. Air exerts pressure (in all directions; upwards; downwards).
10. The instrument that measures the pressure of the atmosphere is called a (hydrometer; thermometer; barometer).

SCIENCE, 8TH GRADE

Average Age, 13 to 14½

THE CLOTHES WE WEAR

COURSE OF STUDY

QUESTIONS

1. WHAT OUR CLOTHES ARE MADE OF.

(a) Wool.

Wool and Its Story. (15-5574.)

The Sheep and Goats. (4-1369.)

Why are we really putting on an animal's coat when we dress? Are we cruel to the sheep when we take his wool? What are two valuable characteristics of wool fibre? How many sheep are supplying the world with wool? (15-5575.) How much wool does a sheep produce? (15-5576.) How many pounds of wool does the world produce each year? (15-5578.) How old is the wool industry? What is the greatest sheep-raising country in the world? (15-5576.) What other countries produce much wool? (15-5576; 9-3208.) Why must we buy wool although we are the third largest producers? (9-3208.) Mention four different people that the sheep benefit. (4-1370.) What sheep furnishes a fine grade of wool? (15-5576.) What are the two distinct kinds of cloth into which wool is woven? (15-5577.) Briefly describe the steps in the process of making woolen cloth. (15-5578.) What country manufactures the most woolen goods? (4-1370.)

(b) Cotton.

How Cotton Becomes Cloth.
(14-5166.)

Plants That Clothe Us. (8-2782.)

What is the most valuable fibre in the world? What does cotton come from? (14-5167.) What countries produce cotton? (14-5167; 5-1626.) In what part of the U. S. is most of our cotton grown? (14-5167; 5-1626; 13-4524.) Why does the U. S. both sell and buy cotton? Where does most of the cotton come from that we buy? (14-5168.) What is the name of the cotton with the long fibre that we raise? (14-5168; 8-2678.) How are the seeds separated from the fibre? (14-5167.) How did the invention of the cotton-gin aid slavery? (6-1912.) What are the seeds used for? (14-5168.) What is the enemy of the cotton plant? (18-6729; 5-1626; 8-2784.) What country manufactures the best cotton cloth? What country manufactures the most cotton cloth? Which of the United States make the most cotton goods? (14-5168.) Describe the different processes in the manufacture of cotton cloth. (14-5170.) What is yarn? Fibre? (14-5168.) Bobbin? (14-5172.) Mule? (14-5173.) Warp? (14-5175.) Loom? (14-5176.)

(c) Linen.

How We Get Linen. (9-3317.)

Plants That Clothe Us. (8-2782.)

From what plant is linen made? What country raises the best flax? (9-3317.) What are some of the uses to which the flax

COURSE OF STUDY

QUESTIONS

- (d) Silk.
The Wonder of a Piece of Silk.
(15-5307.)
- (e) Leather.
Nothing Like Leather. (5-1549.)
The Story in a Pair of Shoes.
(18-6440.)
- (f) Fur.
Canada and the Fur Trade.
(12-4337.)
Fur-farming in Canada. (13-4693.)

plant is put? (8-2786.) What is the earliest knowledge we have of the use of linen? What country produces the best linen? (9-3317.) What other countries weave a good linen? (9-3216, 3317.) Explain briefly the steps in the manufacture of linen. (9-3318.)

What gives us our silk? (15-5307.) Upon what does the silkworm feed? (15-5308.) Can silkworms be raised in the U. S.? (15-5308; 9-3214.) Why must the silkworm die in order to give us silk? (15-5309.) What is it that the wisest man can do no better than a boy? (15-5310.) What country has been engaged in the silk industry for thousands of years? What countries in Europe have been great silk producers? (18-6529.) What is the annual world production? (18-6731.) What country is the largest user of silk? In what condition is the silk that is imported? (9-3214.) Why is this country the largest user of silk? What is the leading state in silk manufacture? What city leads the world in the manufacture of silk? (9-3216.) What is artificial silk made of? What country makes enormous quantities of artificial silk? (13-4828.) What is rayon? How is it made? (15-5310.)

How far back in history has leather been used? What strange things has leather been used for? From what does leather come? (5-1549.) Name some of the animals from which we get our leather. (5-1550; 9-3216.) What part of the world's leather does the U. S. produce? How much leather does the U. S. use? (9-3216.) Why is the supply of leather growing smaller? Why is leather constantly growing more expensive? (5-1551.) What kinds of leather are used for shoes? (18-6445.) What was the first foot-covering like? (18-6446.) What is the centre of shoe-manufacturing in America? What are the following: upper, sole, heel, last? (18-6442.) What substitutes are used to take the place of leather? (5-1551.)

In what part of the world does most of the trapping take place? Why? (12-4337.) What is the largest fur-trading company in the world? What portion of all furs is exported by this company? What skin is used as money in the fur country? (12-4340.)

COURSE OF STUDY

QUESTIONS

- (g) Rubber.
The Story of Rubber. (4-1404.)
2. HOW TO TEST CLOTHING MATERIALS.
How to Test for Pure Silk. (2-621.)
Simple Tests for Cotton, Linen, Wool and Silk. (5-1774.)
3. HOW OUR CLOTHES ARE COLORED.
4. SELECTION OF PROPER CLOTHES.
5. CARE OF OUR CLOTHES.
The Right Way to Mend Things. (13-4737.)
How to Knit a Child's Sock. (13-4851.)
How to Make Old Clothes New. (11-3857.)
- What is the greatest enemy of the fur-hunter? Why is it called "The Evil One"? What is the best season for trapping? Why? Why is the trapper's life a lonely and dangerous one? Who make the best trappers? How are the furs finally disposed of? (12-4341.) What is the pay of the trapper for his winter's work? (12-4342.) Why are fur-bearing animals being raised? What animals are being raised for their fur? (13-4693.) What are some of the difficulties met with in raising foxes? (13-4696.) What city is the centre of fur-trading in the U. S.? (18-6426.)
- From what is rubber obtained? (4-1404.) How was rubber discovered? Where does the name India-rubber come from? (4-1405.) What was the greatest step in the development of the rubber industry? (4-1406.) Who discovered the process of vulcanizing? (4-1406; 19-7211.) What is meant by "vulcanizing"? (19-7211.) Name three articles of clothing made possible by this discovery. (4-1406.)
- What are simple tests for cotton; for linen; for wool; for silk? (5-1774.) How can we find out whether silk is pure? (2-621.)
- How do the colors come to be in the cloth? (14-5168.) What plants produce dyes? (9-3152; 5-1627.) What are aniline dyes? Coal-tar dyes? (13-4531.)
- Why does a woolen garment keep us warm when a cotton or a linen one does not? Why should we wear wool next to our bodies in a changeable climate? (15-5577.) Why do we wear light things in summer and dark things in winter? (14-5086.) Why is tight clothing bad for us? (8-3013.) Why does starch stiffen clothing? (11-3978.) What do shoes do to our feet? (5-1677.) How may shoes injure our feet? (18-6446.)
- What is the chief cause of the dirt in our clothes? (4-1355.) What will remove grease-spots? (15-5335; 2-618.) When should stains be removed from clothes? What should you find out before trying to remove a stain? What is a safe remedy for nearly every variety of stain? Why should

COURSE OF STUDY

- The Right Way to Clean Things.
(15-5335.)
How to Remove Stains. (2-618.)

QUESTIONS

chemicals be used with care? How can you remove grass stains? Iron rust? (2-618.) Why does hot water clean things better than cold? (4-1355.) If your clothes become splashed with mud, what is the best thing to do? How can you remove the following: dirt-marks; ink-spots? (15-5335.) Why does ink stain while water does not? (6-2252.)

THE STORY OF ELECTRICITY

1. WHAT IS ELECTRICITY?

- (a) Magnetism, frictional and current electricity.
The Pull of the Earth. (14-5177.)
What Gravitation Means.
(13-4795.)
How to Read the Mariner's Compass. (16-5984.)
How Magnetism Marks the Miles.
(1-76.)
The Story of Electricity. (16-5665.)
Men Who Found Electricity.
(4-1243.)
A Modern Wizard. (17-6133.)
Electricity at Home. (5-1773.)
What Makes the Electric Bell Ring?
(16-5801.)
How to Repair an Extension Cord.
(6-2045.)

Do magnets ever lose their magnetic power? (10-3581.) Why is a needle no heavier when magnetized? (11-3976.) What are magnetic lines of force? (16-5667.) What are magnetic poles? (16-5668.) How can the compass be turned from the north? (4-1251.) When was electricity first used? How was the first kind of electricity produced? What was the earliest substance known to show the property of attraction? (16-5665.) What was the first use to which electricity was put? (4-1253.) When did the world begin to take a real interest in electricity? (4-1243.) How did electricity get its name? (4-1244.) What man's name was given to the electric waves? (4-1254.) Name three men whose names are connected with electricity and tell what each did. (4-1243-54.) What are some of the big things that Edison invented or perfected? (17-6136.) What are the sources of electricity? (9-3212; 16-5673, 5674.) What is it that converts these sources into electricity? (16-5673.) What are the two kinds of electricity? (4-1246; 16-5666; 12-4290.) What are the two kinds of current? Of what use is each? How is the pressure of an electric current measured? (16-5674.) How long does it take for electricity to travel? (4-1248.) How is resistance measured? (16-5674.) When are high voltages used? What is a fuse? What does it do? How does the electric company know how much electricity you have used? (16-5675.) What produces electricity by chemical action? (4-1251.) What is a storage battery? Why is it important? For what is it used? (16-5676.) How does an electric battery work? (16-5672.) What is meant by joining cells "in series"? (16-5676.) Upon what does the voltage of a storage battery depend? Upon what does the capacity depend? Why must a storage battery be charged from time to time? What are two

COURSE OF STUDY

QUESTIONS

2 POWER BY ELECTRICITY.

- (a) The dynamo.
 How Water Is Transformed into Power. (15-5438.)
 Water Power of the World. (15-5429.)
 Niagara's Vast Supplies of Power. (15-5434.)
 Where Electric Power Is Generated. (17-6135.)
 The Biggest Generator in the World. (15-5437.)

- (b) The electromagnet.
 What Electricity Can Do. (16-5797.)
 One of the Biggest Lifting Magnets. (16-5796.)
 How the Giant Magnets Are Used. (16-5799.)

- (c) Electric trains, trolleys and elevators.
 How Elevators Go Up and Down. (4-1215.)

serious faults with storage batteries? (16-5677.) What is a Daniell's cell? (16-5672.) What happens when we press the button of an electric bell? (16-5798.) What makes the bell ring? (16-5801.) What are ions? (16-5672.) What are ohms? (16-5673.) What is an electro-scope? What does it do? What is the aurora borealis? What causes it? Over what parts of the earth is it most common? (16-5670.) Can electricity disperse a fog? (3-981.) Does electricity affect the growth of plants? (7-2609.) Suppose the insulation wears off the cord of your electric iron. What might happen? How would you repair it? (6-2045.) Describe an experiment with electricity that can be tried at home. (5-1773.) What would you do for a person who had received an electric shock? (16-5981.)

Give two advantages of making electricity by water power. (15-5429.) What is a dynamo? An armature? (16-5668.) What is the principle of the electric dynamo? (4-1252; 16-5667, 5674.) What things are made possible by the dynamo? (4-1252; 16-5671.) Where is the largest turbine in the world? What is a turbine? How does it work? (15-5429.) What does the expression "horse-power" mean? (2-689.) How is power carried to a distance? (14-5221.)

What is the electromagnet? (4-1252; 16-5672, 5798.) To what uses is the electromagnet put? (16-5799.) What is the great advantage of the electromagnet? (16-5798.) What two great purposes does the electromagnet serve? (16-5802.) How does it help the doctor? What device in your home depends upon it? (16-5798.) Mention some other devices that depend upon the electromagnet. (16-5800.)

What public conveyances are run by electricity? How does the trolley pick up the power which drives it? (16-5804.) At what two times in the running of a trolley is the demand upon the power greatest? What is the advantage of electric railways over steam railways? What is the "dead man's handle"? How does it increase safety on trains? Why can electric cars go down hills that would be impossible for horse-drawn cars? How is power supplied to electric trains? What are the difficulties in supplying power on long-distance railways?

COURSE OF STUDY

QUESTIONS

(16-5805.) In what way do automatic signals add greatly to the safety of travel?
 (16-5806.) What are the two types of electric elevator? (4-1217.) How high can an electric elevator go? (4-1214.) What would happen if the rope broke? (4-1218.)

(d) Lightning.

What does nature supply that is more powerful than any electric machine made by man? (16-5670.) What is the force in lightning that kills a man? (15-5620.) How is lightning caused by drops of rain? (8-2924.) How powerful is a flash of lightning? (16-5670.) Where does the lightning go when it reaches the ground? (16-5744.) Why does lightning strike some things and not others? (6-2125.) What is a lightning-conductor? How does it guard a house from danger? (16-5670.)

3. LIGHT BY ELECTRICITY.

- (a) The flash-light, search-light, arc light, carbon light, tungsten light, etc.
 Electric Light and Heat. (16-5937.)
 The Secret of the Electric Lamp. (16-5939.)
 How Your Flash-light Works. (16-5664.)
 How to Fix a Cellar Electric Light. (6-2167.)

What is the poor man's treasure which once kings could not buy? (3-994.) Who invented the electric arc? What other important form of light did he invent? (16-5937.) How does the arc light work? (16-5937; 3-993.) What are the differences between a carbon and a tungsten lamp? Why is the tungsten lamp so popular? (16-5938.) How is a tungsten lamp made? (16-5939; 3-994.) What is carbon? Filament? (3-994.) What makes the glow in an electric light? (5-1608.) What gases are now put in many lamp bulbs? Why? (16-5939.) Can you fit up an electric light in your cellar or room? (6-2167.)

4. HEAT BY ELECTRICITY.

- (a) The electric furnace; welding; home appliances.
 Electric Light and Heat. (16-5937.)
 The Greatest Heat That Man Can Make. (16-5947.)

Where is the most intense heat made that man can produce? How high a temperature can be secured in an electric furnace? (16-5944.) Why is an electric furnace called an "electric sun"? (16-5948.) Why is an electric furnace expensive to run? What are its advantages? What is it used for extensively? (16-5946.) What substance is obtained from the air by means of the electric furnace? (16-5804, 5946.) Why is it so valuable? (16-5946.) What is welding? For what purposes is it used? For what other purposes is the electric furnace used? (16-5948.)

5. COMMUNICATION BY ELECTRICITY.

- (a) The Telephone.
 The Wonder of the Telephone. (17-6183.)

What do we mean when we say that we hear a sound? (17-6183.) Who invented the telephone? (17-6242.) How does a telephone work? (17-6184.) What happens when you call a number? (17-6185,

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- The Pioneers of the Telephone.
(17-6247.)
- The Makers of Telegraphs, Tele-
phones and Wireless.
(17-6235.)

- (b) The Telegraph.
The Wonders of the Wires.
(17-6062.)
- How We Send a Telegram.
(17-6049.)
- The Makers of Telegraphs, Tele-
phones and Wireless.
(17-6235.)
- The Men Who Invented Telegraphs.
(17-6239.)
- The Wire That Runs Under the Sea.
(12-4293.)

- (c) Wireless Telegraphy.
Messages That Fly Through Space.
(17-6061.)
- The Makers of Telegraphs, Tele-
phones and Wireless.
(17-6235.)

QUESTIONS

6186.) What is "Information"? In what ways can you show good manners in using the telephone? (17-6186.) How are calls made between central offices? (17-6187.) How does the dial, or machine-switching, telephone work? What countries use the most telephones? (17-6188.) What uses are made of the telephone? (17-6183.) Where do the wires run? (17-6182, 6189.) How can you make a toy telephone? (17-6183.) What is the dictaphone? Why is it useful in business? (17-6136.) Can a picture be transmitted over a telephone line? How? (17-6056, 6060, 6188.)

What two men invented the telegraph? (17-6239.) How is a telegram sent from one city to another? (17-6049.) What would be the route of a telegram from Trenton to San Francisco? How is it possible for several messages to be sent over the same wire at the same time? (17-6052.) How is the message received at the other end? (17-6053.) What are the little white cups on the telegraph poles? (16-5962.) Why are the glass or porcelain insulators on the poles? (16-5666.) What are the wire hooks on the cross-bars of the poles? (7-2612.) Why do the telegraph wires vibrate or hum? (15-5614.) Whose work made the submarine telegraph possible? (17-6241.) How was the first cable across the ocean laid? What difficulties were met? (12-4295.) How many tons of copper are used in an Atlantic cable? (12-4296.) What is used to insulate the cable? (12-4296, 4298.) Why must a cable be so well protected? (12-4298.) How do men find where a fault is in the Atlantic cable? (1-188.) About how many miles of submarine cable are in use? How are electric messages sent under the sea? What large bodies of water are crossed by cables? What are codes? Why are they used? Of what advantage are they? How fast can messages be cabled? (17-6054.)

Who invented wireless telegraphy? (17-6247.) What is the big part that electricity plays in the life of a ship? (12-4416, 4421.) What are some of the uses of wireless on a ship? (12-4421.) How does the wireless tie the ship to the land? (17-6054.) Can trees receive a wireless message? (3-980.)

COURSE OF STUDY

QUESTIONS

- (d) Radio.
 The Wonder of Radio. (17-6363.)
 A Crystal Radio Receiving Set.
 (15-5510.)
 How to Make a Simple One-Tube
 Radio Set. (1-335.)
 A Short-Wave Radio Receiving Set.
 (13-4624.)
 How to Prevent Static in Your Radio.
 (17-6260.)
 Enjoy Your Radio on Auto Trips.
 (16-5977.)

What does radio mean? What do we mean by wave-length? What is "radio frequency"? What are the four requirements of radio? (17-6364.) What does the simplest receiving set require? (17-6366.) What lies behind a radio message? (17-6367.) What men helped to give radio to the world? What is broadcasting? (17-6368.) What are amateurs? Are you one? Why is some of the best work in radio being done by youthful amateurs? (17-6373.) What are some of the uses of radio? (17-6363.) Will radio replace wires? (17-6370.) How are radiograms sent and received? (17-6371.) Can pictures be sent by radio? When was the first one sent? How far was it sent? (17-6370.) How is it done? (17-6372.) Is it possible to use a radio set on an automobile? What is the most difficult problem in auto-radio? (16-5977.) What are the objections to installing radio sets on the dashboards of automobiles? (16-5978.) How would you build a crystal receiving set? (15-5510.) How would you make a one-tube set? (1-335.) How would you make a short-wave radio receiving set? (13-4624.) How would you prevent static in your radio? (17-6260.)

6. OTHER USES OF ELECTRICITY.

- (a) The X-Ray.
 The Rays That Show the Invisible.
 (16-5941.)
 The X-Rays and the Power Behind
 Them. (16-5945.)

Who discovered the X-rays? Why are they valuable? (16-5940.) What danger is attached to the use of the X-ray? (16-5942.) Why are the X-rays useful in surgery? (16-5940, 5941.) How are X-rays useful in other ways? (16-5943.) Why can we say that the X-rays have opened up a new world to us? (16-5944.)

- (b) Electroplating, electrotyping, the electric clock, etc.
 Telling Time in a Hundred Rooms.
 (16-5803.)

How is the silver put on our spoons and forks? (4-1308, 1311.) What is this process called? (4-1308.) What is its value? (16-5802.) What is electrotyping? What is its great advantage in printing? (9-3390.) Have we reached the end of the uses to which we will put electricity? (16-5806.)

TESTS (SCIENCE, 8TH GRADE)

Here are 30 easy questions. Answer 25. Count 4 for each correct one.

FALSE-TRUE

If the statement is true put a check after it; if false put a cross.

1. Australia manufactures the most woolen goods.
2. The United States is the largest user of silk.
3. Tight clothing is bad for us.
4. India is a leading fur-producing country.
5. The pressure of an electric current is measured in amperes.
6. Lightning is more powerful than any electric machine.
7. Argon and nitrogen are sometimes put in lamps to make them burn more brightly.
8. The United States uses the most telephones.
9. Edison invented wireless telegraphy.
10. Pictures can be sent by radio.

COMPLETION

Fill in the proper word or words.

1. is the most valuable fibre in the world.
2. Silk comes from the
3. make the best trappers.
4. A garment keeps us warm, but a garment does not.
5. A serious fault with a storage battery is that it is
6. The two kinds of electricity are and
7. The converts coal or water power into electricity.
8. The two kinds of current are and
9. The most intense heat that man can produce is the
10. The amount of current in a circuit is equal to the divided by the

SELECTION

Each sentence talks about three things. Only *one* of the three is correct. Draw a line under the correct one.

1. Most of our cotton is grown in (the northern part; the eastern part; the southern part).

TESTS

2. The best linen is made in (the United States; Ireland; Germany).
3. (New York; Chicago; St. Louis) is the centre of fur-trading in the United States.
4. (Woolen; linen; cotton) garments keep us warm.
5. An electric current is measured in (volts; ohms; amperes).
6. The largest turbines are in (the United States; England; France).
7. (The vacuum cleaner; the door bell; the electric iron) depends upon the electromagnet.
8. If the cable of an electric elevator broke, the elevator would (keep on going; stop; fall).
9. The electric light most commonly used in homes is the (arc light; carbon light; tungsten light).
10. The process of coating metal tableware with silver is called (electroplating; electro-typing; electrolysis).

SCIENCE, 9TH GRADE

Average Age, 14 to 15½

THE STORY OF HEAT

COURSE OF STUDY

1. FIRE.
 - (a) Nature of fire; fuels; fire prevention. Why Does the Fire Go Out? (11-3839.)
How Matches Are Made. (19-6965.)
Loads of Sunshine for Our Homes. (3-802.)
Coal and What It Can Do. (3-785.)
Where Gaslight Comes From. (2-635.)
Oil and What It Can Do. (13-4533.)
When the Fire Alarm Rings. (9-3157.)

QUESTIONS

How did men find fire? (9-3353.) How did they first get fire? What did they burn? How did they light them? (3-989.) Why did our ancestors keep a central fire burning all the time? When the tribe moved, what did they do with the fire? Why did savages worship fire? (19-6965.) What were the early ways of starting a fire? (19-6965; 1-308.) What is the simplest means of lighting a fire? (12-4376.) What do we use to-day? (19-6966.) Why does a match strike? (1-307.) Why is phosphorus put on the tip of the match? (19-6968.) Why does a match flare up when held upside down? (14-5087.) Why does a match go out when we blow it? How can we make it burn more briskly? (3-980.) What is fuel? What is common fuel for fires out of doors? (12-4376.) What is it that happens when a piece of wood is burned? (11-4096.) What is the most common fuel for the home? What does coal come from? (3-785.) Where is it found? What kind of coal is used in houses? What is it called? (3-786.) What products are obtained from coal? (3-794.) What does gas come from? (2-635.) How is it carried to our houses? (2-638, 645.) For what is it used in our homes? (2-638.) Why does oil burn more easily than some other things? (5-1751.) What are the three sources of oil? (13-4533.) Where did the oil come from in olden times? (3-996.) Where does it come from to-day? (3-996; 13-4534.) How did it get into the depths of the earth? (13-4535.) Where is oil found in the United States? How is oil wasted? (13-4538.) What is another name for oil? (13-4534.) In what ways is oil better than coal? (13-4538.) Where has oil taken the place of coal? Why will oil never completely take the place of coal? (13-4539.) How is oil brought to our towns? (13-4552.) What important products do we get from oil? (13-4539.) What is oil used for in the home? (3-996.) How did we get the word "kerosene"? (13-4534.) Why is kerosene useful in the home? (13-4539.) What makes flames dance in an open-grate fire? (14-5221.) Does smoke always come from a fire? (15-5517.) Why does celluloid catch fire so easily? (10-3477.) Why does not iron burn in the fire?

COURSE OF STUDY

QUESTIONS

2. THE NATURE OF HEAT.

- (a) What it is.
- (b) Sources: the sun, interior of earth, friction, burning, electricity.
- (c) Kinds of heat.
- (d) Specific heat.
- (e) References:
 - Hot Things and Cold Things. (15-5423.)
 - The Sun and Its Power. (9-3171.)
 - How Heat Works for Us. (15-5569.)
 - Electric Light and Heat. (16-5937.)
 - Inside the Wonderful Ball. (2-385.)

(4-1356.) Why is the fire hot? (16-5846.) What is our most useful servant? What does fire do for us? Why is fire like a slave ready to rebel? (9-3157.) What fires are the most to be dreaded? (9-3160.) Why are fire departments necessary? Why have they fewer fires in Europe than in America? How may fires be prevented? (9-3164.) Why is a fire pail filled with sand? (4-1452.) What are the dangers of fire in your home? In the school or public buildings? (10-3772.) How may each one of us help to prevent fires? (9-3164.)

What is heat? (15-5423, 5569.) Is it a kind of matter? Can it be weighed? (15-5423.) What is the source of all our heat? (15-5571; 8-2664; 9-3171.) Why is the sun "the great source of the power which sustains all life"? (9-3178.) What is the temperature of the sun? (9-3172.) Will the sun ever be as cold as the earth? (14-5220.) In what part of the earth is there great heat? (7-2313.) How do we know? (9-3208; 2-730; 7-2574.) How is a volcano formed? (8-2873; 2-385.) How can you make heat without fire? (15-5569; 11-3840.) What substance has the power to heat the earth for ages? (2-388.) What produces the most intense heat that man can make? (16-5944.) What is the greatest heat man can produce? (16-5944; 9-3172.) What happens in the fierce heat of an arc-flame? Why is this called an "electric sun"? Why must the welder screen his eyes? What are some of the uses of the electric furnace? (16-5948.) Can we add heat to a thing without making it hotter? Give an example. (16-5661.) What are the two kinds of heat? (13-4666.) What do we call a fixed quantity of heat? What happens to the heat when ice turns into water? (16-5662.) What is latent heat? When the temperature does not change by adding heat, what does change? What is sensible heat? (16-5661.) What happens to the heat which becomes hidden in a basin of ice and water? (16-5662.) What is specific heat? Why does the same amount of heat make one thing hotter than another? Why does the teapot keep hot so long? What is the specific heat of water compared with other things? What connection has this with "island climates"? (16-5663.) What is the law of conservation of energy? How can heat be changed into work, and work into heat? What is the machine that gives heat when we want it to give work? (15-

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

3. MEASUREMENT OF HEAT.

Thermometers. (7-2648.)
Heat and Temperature. (16-5661.)

5570.) Why can we never get a really perfect machine? (15-5571.)

What is the instrument that measures heat? How is it different from a thermometer? (16-5662.) What is a thermometer? What does it measure? What is temperature? Why is temperature not the amount of heat in a thing? (15-5572.) How is a thermometer made? What are the two most common kinds of thermometers? What is the freezing-point on each? The boiling-point? (15-5573.) If the glass tube and the mercury expanded at the same rate when heated, what would happen? How much more does the mercury expand than the glass? (7-2648.)

4. EFFECTS OF HEAT.

- (a) Expansion of solids, liquids, gases.
Making a Hot-air Balloon.
(10-3770.)
(b) Fusion: welding.

What happens to a thing when it is heated? (11-3977.) What happens to the molecules of water when the water is heated? (15-5424; 13-4666.) What happens to a piece of iron when it is heated? (12-4157.) Does a thing weigh heavier or lighter when hot or cold? How much space does it occupy compared with what it occupied before? (11-3977.) Why does hot water take up more room than cold water? (16-5960.) Where is the hottest water in a kettle? Where is the hottest air in a room? Why? (11-3977.) Why does hot water crack thick glass more easily than thin? (13-4828.) What is the metal that will stand great heats? In what very common and necessary household appliance is it used? (16-5938.)

5. MOVEMENT OF HEAT.

- (a) By conduction, convection, radiation.

In what ways does heat travel from place to place? (15-5426, 5427.) Why does a pin get hot if rubbed against a stone? Would a match-stick get hot? Why? (11-3840.) Why does iron feel colder than wood? (4-1451.) Why do we put a spoon in a glass before pouring in hot water? What kind of conductor of heat is a spoon? What kind of spoon would be best? Why will any metal spoon do? (9-3354.) Why are spaces left between the rails? (15-5569.) What materials are good conductors of heat? What are bad conductors? (15-5427.) How does the water in the kettle become heated all through? (15-5426.) How can a row of boys show the ways in which heat travels? (15-5427.) Why does a full bottle keep hot longer than one half full? (10-3475.) Why is the air warmer near the ground than up above? (8-2664.) Why does heat make things seem to quiver? (5-1751.) Why does a flame rise to a thing

COURSE OF STUDY

QUESTIONS

6. CHANGING A LIQUID TO A GAS.

(a) Evaporation.

held above it? How can a poker help the fire to burn? (11-4133.) What is a thermos bottle? What kind of conductor must a thermos bottle be? What is there between the outer and inner walls of the bottle? In what way is a thermos bottle useful on outings? What does a thermos bottle do to hot things? To cold things? (17-6174.)

Why does a wet plate get dry if we leave it alone? What do we call this? At what temperatures will evaporation occur? What conditions are best for evaporation? What are bad for it? (3-981.) How are our bodies kept cool in summer and warm in winter? (4-1418.) What happens when the weather is what we call "close"? (4-1419.) Why are some days hotter than others? On what kind of day will evaporation from our bodies be fast? On what kind of day will it be slow? When do we feel hot? When do we feel cool? (18-6556.) Why does heat crack wood? (17-6289.) Why does heat make paper curl? (9-3356.)

(b) The boiling point.

What is boiling? (8-3014.) What happens to water when it boils? (15-5424.) Does heating boiling water make it hotter? (16-5661.) Upon what does the boiling-point of water depend? What substances have high boiling-points? What substances have low boiling-points? (8-3014.) Where will water boil at less than 212° F.? Where must it have more than 212° F. to boil? When water is boiling why can it not be made hotter? (13-4595.)

7. THE HEAT OF THE BODY.

Where does the warmth in our bodies come from? (14-5218.) What do we mean when we speak of a calorie? How much heat is needed by the human body each day? How much food should we eat each day? (18-6694.) Why do our faces keep warm without clothes? What is the difference between *being* cold and *feeling* cold? (8-2720.) Is our blood cold when we feel cold? (7-2485.) What makes our teeth chatter when we are cold? (10-3475.) Why is it that if a cold object is passed over our skin, it feels colder in spots, and a hot object feels hotter in spots? (4-1419.) Why does boiling water feel cold when we put our hand into it? (14-4950.) Why are dark things warmer than light things? (3-877.)

8. COLD.

What happens when things cool? To what temperature will water condense when cooled? What happens to it below that

COURSE OF STUDY

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9. ICE.

QUESTIONS

point? Does ice take up more or less room than it did as water? Why does an iceberg float? How much of the ice is above water? How much below water? (4-1355.) Why does a piece of ice make a drink colder? What happens to the heat that was in the drink? (13-4827.) Why is a snowflake lighter than a raindrop? (9-3101.) How does salt melt snow? (12-4505.) What is frost? (14-4905.) Why will windows of cold rooms show better frost pictures than windows of warm rooms? (14-4906.) Can anything boil when it is cold? (8-3014.) Can ice be cooled? What happens to its molecules as it is cooled? Can a thing be cooled until its molecules will not move at all? What is the lowest temperature to which matter can be reduced? (15-5424.) What is that temperature called? What is matter like at absolute zero? Why do we believe that matter does not disappear at absolute zero? What is liquid air? What does it look like? How cold is it? What is it used for? What is constantly happening to it? What is solid air? (15-5425.) How near have we come to absolute zero? Why is it hard to get all the heat out of a thing? (15-5426.)

THE STORY OF LIGHT

COURSE OF STUDY

1. THE NATURE OF LIGHT.

- (a) How caused; speed; intensity; uses; darkness.

Light and What Makes It.

(16-5807.)

A Fairy-fountain Experiment.

(2-627.)

How Do We Know the Speed of Light? (10-3473.)

What a Light-year Is. (11-3925.)

The Men Who Gave Us Light.

(3-989.)

Where Gaslight Comes From.

(2-635.)

Oil and What It Can Do. (13-4533.)

Electric Light and Heat. (16-5937.)

Why Can't I See in the Dark?

(5-1807.)

Does Light Die Away? (10-3577.)

QUESTIONS

What is the modern theory of light? What are atoms? What are electrons? If we compare the electrons to planets and the atoms to suns, what are three differences between the movements of electrons and the movements of planets? (16-5808.) Do light waves move like sound waves? (16-5812.) Why will a ray of light not spread out and fill a room? (16-5811.) What could you compare the movement of a light wave to? (16-5812.) Are light waves and electric waves alike? (17-6080.) Is all light the same? (11-3922.) How are different kinds of light produced? (16-5809.) From what kind of bodies does light usually come? Is there such a thing as cold light? (12-4157.) What is meant by phosphorescent light? (2-586.) Do we see things in the distance or the light that comes from them? (2-458.) Why is the world light when the sun is behind clouds? (16-5744.) Why do metals let light through when beaten thin? (5-1750.) Does light exert pressure? (16-5809.) What is the pressure of the

COURSE OF STUDY

QUESTIONS

sun's light on the earth? (10-3665.) What chemical action of light is evident in the home? (10-3683.) Why do things turn yellow with age? (14-5085.) Why does the sun fade carpets and not flowers? (4-1354.) Does light move? How fast does it travel? (16-5807.) How do we know the speed of light? (10-3473.) How does light make its journey from the sun to the earth? What becomes of the light during the eight minutes it is traveling from the sun to the earth? (13-4666.) Why does the air not stop the light of the sun? (15-5620.) As we move away from light, what seems to happen to its power or intensity? (17-6081; 10-3577.) What is the law for the intensity of light? (17-6081.) Does light die away? (10-3577.) Does light enter our bodies? Is it necessary to keep us alive? (6-2186.) What is the effect of light upon our health? Why should we live in the light as much as possible? (4-1415.) What is the effect of light upon plants? (2-745; 4-1475.) How is light useful in medicine? (15-5492.) How does light measure distances? (9-3033.) What is a light-year? (11-3925, 4038.) What are some of the ways of obtaining artificial light? (3-989; 2-635; 13-4540.) What is darkness? (5-1807.) Why are the shadows longer at the end of day? (4-1230.) Why is it dark at night? (1-78.) When is it darkest? (12-4506.) When we say a place is dark is there really no light present at all? Could cats see if it were entirely dark? Why can cats and tigers see so much better than we in places with very little light? (5-1807.)

2. REFLECTION OF LIGHT.

How to See Through a Brick.
(12-4377.)

Mirrors in Which to See Ourselves.
(18-6752.)

Can we see through a brick? How is it possible? What is the law of light upon which this depends? (12-4377.) Why do some substances absorb light and others not? When a substance absorbs light, what happens to the light? How does light pass through a pane of glass? Is there any substance that lets all the light through? What proof have we? What do we call the turning back of light by a substance? What is the law of reflection? (17-6081.) How does still water reflect a distant scene? (3-978.) How do clouds stop sunlight? (4-1453.) Why does the sea look blue? Why does the color of the sea change so much and so often? (6-2124.) How are we able to see lightning below the horizon? (8-2924.) Why do we see in a mirror things not in front of it? (4-1230.) Why does a face in a mirror seem crooked? (17-6285.)

COURSE OF STUDY

QUESTIONS

3. REFRACTION OF LIGHT.

(a) Nature of refraction.

How a Magnifying Glass Makes Things Bigger. (2-462.)
Seeing What Is Not There. (5-1806.)

What is a concave mirror? (13-4669.)
What is used for mirrors? What was formerly used? What is poured on the glass? What does this do to the light waves that strike the glass? Why is it better than mercury and tin? (18-6752.)

What is refraction? (10-3686; 17-6081.)
Describe an experiment to show refraction of light. (2-622.) What is a lens? (13-4669.) From what are lenses made? What do we call this bending of the light waves by the lenses? What is a convex lens? (13-4670.) Why does water always seem shallower than it is? (2-688.) Why do houses seem crooked when we look across a fire? (5-1752.) What is a mirage? (5-1810.) How is a mirage caused by refracted light? (5-1806.)

(b) The eye.

The Story of the Eye. (10-3683.)

Can we always believe our own eyes? (8-2746.) How can we judge real or pictured distance? (3-1116.) How does the eye change the course of light? (17-6081.) Why cannot we see very small things with our naked eye? (14-4952.) Why do we see a black spot in the sky after looking at the sun? (14-4950.) What is meant by "errors of refraction"? What is meant when we say that a person is near-sighted? Far-sighted? What is the cause of each? How is each condition remedied? Why do people need glasses? What do glasses do for people? (10-3686.) Do a horse's eyes magnify? (17-6178.) Explain the following terms: epidermis (10-3683), convex, retina, cornea, iris, pupil, aqueous humor (10-3684), lens (10-3685).

(c) The camera.

Photography Without a Camera. (8-2739.)

Using the Camera Outdoors. (13-4617.)

Making Moving Pictures. (18-6593.)

Photography on a Table. (18-6517.)

Why is it that the camera can see things that our eyes cannot see? (17-6080.) Can we take pictures without a camera? (8-2739.) Why is the camera useful in astronomy? (1-288.) Is there any motion in "moving" pictures? (18-6596.) How are the moving-picture plays made? How are the pictures made? Explain the working of the moving-picture camera. (18-6597.) What happens to the films after they have been exposed? (18-6598.) How are trick pictures made? (18-6602.) How are the cartoons made for the films? (2-456.)

(d) The telescope.

What We Know About the Stars. (11-3921.)

Making a Simple Telescope. (12-4265.)

What is a simple telescope? Explain how to make a simple telescope. (12-4265.) Who made the first telescope? (13-4671; 10-3411; 1-280.) Why is the telescope important? (1-280.) Why do we never see the stars exactly where they are? (17-6082.)

COURSE OF STUDY

QUESTIONS

- (e) The microscope.
The Story of the Microscope.
(13-4669.)
Peeps Through a Microscope.
(1-218.)
4. COLOR.
Where Color Comes From.
(17-6079.)
The Eye's Wonderful Curtain.
(11-3804.)

How does the lens make things appear larger in the microscope? (13-4670; 2-462.)
What are some of the uses of the microscope? (13-4670.)

What is color? (17-6079.) How is it made? (17-6079; 11-3804.) Of what colors is white light made? (11-3804.) Does all light contain the same colors? What use do we make of this fact? What happens to light when it passes through a prism? Why is this possible? (11-3922.) What makes us see different colors? (11-3804.) What causes the rainbow? Where do the colors in the rainbow come from? (16-5810.) How does the eye see all the colors of the rainbow? (11-3804.) How many colors has the rainbow? (7-2486.) What is the band of colors in the rainbow called? How can we get the colors out of a beam of sunlight? (16-5810.) What is the study of the band of colors called? What does it tell us? How can a piece of glass tell us what the stars are made of? (16-5811.) When we are looking at a rainbow can people see the other side? (6-2251.) How does refraction produce color? (17-6082.) What makes the colors of the sunset? (18-6552.) Have things any color at night? (8-2874.) Is there a color our eyes cannot see? (10-3579.) Why are dark things warmer than light things? (3-877.) Why do dark things look smaller than light things? (6-2122.) What makes the fire change color? (16-5746.) Why do the hills look blue at a distance? (9-3102.) Why, if we look at red, do we afterward see green? (2-687.) Why does a piece of blue cloth look black in a red light? What is the difference between luminous and non-luminous things? How are colors produced by reflection? (17-6082.) Why is foam white? (17-6176.) Why is the snow white? (18-6694.) Why is the sky in Italy so blue? (17-6179.) Is there any color in the sea? How far down into the sea can light penetrate? Do all colors penetrate the same distance? Which color goes down farthest? Is there any light at the bottom of the sea? Why? (11-3841.) Why do some colors change in artificial light? (7-2360.)

THE STORY OF SOUND

COURSE OF STUDY

1. THE NATURE OF SOUND.
 - (a) Cause, speed, mediums of sound, sympathetic vibration.
The Waves of Sound. (17-6313.)
The Behavior of a Sound.
(19-6851.)
 - A Box That Draws Voice Pictures.
(17-6145.)

QUESTIONS

What is sound? (12-4156.) How is sound produced? (18-6437.) Does sound travel in straight lines? (2-586.) How do the waves of sound move? (18-6437.) What is the difference between light and sound waves? (16-5811.) How are they different from the waves of water? (18-6437.) What do we mean by the length of a sound-wave? (8-3016.) How can you draw a picture of a sound on a sheet of paper? (18-6439.) What do we call the thing through which sound passes? What is the common medium of sound? What are other mediums? Can there be sound where there is no matter? How can we prove that sound passes through the air and not through ether? (17-6313.) Why do we see the puff of smoke from a distant cannon some seconds before we hear the report of the explosion? (17-6314.) How fast does sound travel? Do the speed and direction of sound ever change? (2-586.) What might cause a change? (2-586; 17-6314.) Which is the best and which the worst of the following mediums: air, steel, water? (17-6313.) Why will a sound travel faster through iron than through air? (17-6314.) How much faster does sound travel in water than in air? Through what substance does sound travel the fastest? How much faster than through air? (2-586.) Why do we hear well on a clear and frosty night? (17-6314.) Is it true that sound goes on forever? (12-4399.) How does it travel on a fine day? On a windy day? In a fog? (2-586.) Why does fog deaden sounds on the sea? (4-1451.) What has the greatest effect on sound? (2-586.) Does sound go through glass? How? (11-3977.) How can sound come into a room through a wall? (12-4279.) Why does a noise occasionally break a window? (7-2611.) Why does the kettle sing? (11-4134.) How can men watch a sound playing with fire? (19-6855.) Why does a stick make a noise when swung in the air? (12-4281.) Why does a tuning-fork sound louder when it touches wood? (14-4952.) What makes the sea roar? (9-3102.) How is sound made by the wind? (11-3841.) Upon what does the loudness of a sound depend? (18-6438; 19-6854.) What is the law for the loudness of sound? (17-6314.) When we sing a note to the piano, why does it answer? (5-1750.) What do we mean by "sympathetic vibration"? (19-6852.)

COURSE OF STUDY

2. HOW WE MAKE AND HEAR SOUNDS.

The Voice-box and Its Uses.
(10-3555.)

The Marvel of Hearing. (9-3305.)

QUESTIONS

Where is the voice-box located? By what other names is it known? What is its object? Have animals voice-boxes? What are the tiny cords in the voice-box called? (10-3555.) What really happens when we sing? Why is the voice much more marvelous than a piano? (10-3556.) Why is it that we use different notes in speaking? When we speak of different kinds of "color" in our voices, what do we mean? How are we able to put *color* into our voices? (10-3557.) What happens when anybody speaks in a *singsong* way? Why do different people have different kinds of voices? Why do voices lose their beauty? (10-3558.) Can we tell anything about the character of a person by his voice? Why should we cultivate a soft and gentle voice? How can we do it? How can we make different sounds by moving the voice organs? (10-3559.) Why does a foreigner seldom speak English perfectly? What is the difference between a vowel sound and a consonant sound? Are there sounds that nobody is able to sing? Why does a singer like to sing in Italian? (10-3560.) Why is it important to a speaker to pronounce consonants well? Of what help are the tongue and the teeth in pronouncing words? (10-3561.) What do we mean when we say that we hear a sound? (17-6183.) Where do we really hear? (9-3305.) In what part of the brain is the sense of hearing? (8-2947.) What organ helps us to hear sounds? (9-3305.) What is the purpose of the outer ear? What advantage have animals over us in the use of the outer ear? What is the purpose of the wax in our ears? (9-3306.) If we get anything into the ear why should we call the doctor at once? Why may a cold in the head cause deafness? (9-3308.) Can you tell about the journey of a sound from the outside to the brain? (9-3310.) Can a fly hear ordinary sounds? Is this true of other insects also? (11-3978.) Why are blind people so quick at hearing? (6-2125.) Why can we hear better when we shut our eyes? (12-4279.)

3. THE PITCH OF SOUND.

What do we mean by the pitch of a sound? (10-3555.) Upon what does the pitch of a sound depend? (10-3556.) What is the law for the pitch of a sound? Why will pouring a little water into a glass tumbler change its pitch? (15-5333.) How is difference in pitch produced in a piano? In a violin? In the voice? (10-3556.) What is the siren? Why is it the best instrument

COURSE OF STUDY

COURSE OF STUDY

QUESTIONS

for studying the pitch of musical sounds? How is the siren made to produce its shrill sound? Do we hear all the sounds that are made? What animals can hear very high-pitched notes? (18-6439.) Why are high notes always heard better than low notes? (18-6438.) Why does the pitch of a train whistle rise as the train approaches us? How does it sound to the engineer? How does it sound to us as the train disappears? Why? (11-4132.)

4. THE REFLECTION OF SOUND

Can sound be reflected? What is the law for the reflection of sound? What is the angle of incidence? The angle of reflection? (17-6315.) What makes an echo? What are the best places for an echo? Why must we stand a distance from the place throwing back the sound? (12-4504.) What is the best example of sound causing an echo? What reflects thunder? Where are echoes a nuisance? What devices are used to prevent them? How was it possible for two men to talk to each other when a mile apart? (17-6316.) Why do our voices sound hollow in an empty hall? (6-2122.) Why do sounds seem different in the open air when compared with sounds in a closed room? Why do our voices sound different in different places? (17-6315.) Why can we hear a noise like waves in a seashell? (5-1608.) Why can we hear a whisper across the dome of St. Paul's? (4-1450.) Why do empty vessels sound more than full ones? (5-1810.) Why does my voice seem louder if I put my hands over my ears? (18-6554.)

5. MUSIC.

(a) The nature of music; musical instruments.

Music and Noise. (18-6437.)

Wonderful, Wonderful Music.
(18-6695.)

How We Got the Piano. (5-1795.)

Music from Drinking-glasses.
(15-5333.)

Musical Instruments from Old Bottles. (17-6387.)

What makes the difference between the sounds we call noises and those we call musical notes? (18-6438.) What is melody? Harmony? (18-6695.) What are discords? (19-6855.) What determines whether music is harmony or discord? (18-6695.) How are discords used to improve harmony? (19-6855.) What is the musician's A B C? What is the common chord that moves men all over the world? (18-6696.) Why is the sound made by the bow of a violin richer than the sound made by plucking the string? What are overtones? What are free vibrations? In what two ways does a string behave? Give an example of each? What are resonators? What do they do? (19-6851.) Why does a good piano make better music than a bad one? (19-6852.) How can a jug of water act as a resonator? Who first made a study of the tuning of resonators? What is the most wonderful of

COURSE OF STUDY

QUESTIONS

musical instruments? Why? What make the resonators for the human voice? How are they different from other resonators? What is the principal resonator for the lower tones of the voice? What are the principal resonators for the upper tones? Why is the power of tuning our resonators of the greatest importance? (19-6853.) How is sound made on a piano? (5-1796.) What happens when the piano is out of tune? (18-6698.) What was the first stringed instrument? (13-4594.) What is the kind of tunes that children like and understand? What is the secret of the violin and its strings? Why is the same note different on different instruments? (18-6699.) Why do different instruments make different sounds? What is the secret of the wonderful violins of olden days? Who were some of the greatest makers of violins? (18-6700.) Why does a violin string change its note when held down? (8-2719.) Why do musical sounds come from the organ? (17-6290.) How are the overtones produced in the pipes of an organ? What are "nodes"? Why do vibrating strings move more quickly in some parts than in others? (19-6854.)

6. OTHER DEVICES BASED ON SOUND.

- (a) The phonograph, dictaphone, etc.
The Talking Machine. (1-261.)

What makes the talking machine talk? How are the vibrations of sound recorded? What is the "master record"? Of what is it made? Why? (1-261.) Why does a horn make the phonograph louder? (14-5224.) What is the dictaphone? (1-264, 265.) Where is it used mostly? Why is it important? (1-265.)

TESTS (SCIENCE, 9TH GRADE)

Here are 30 easy questions. Answer 25. Count 4 for each correct answer.

FALSE-TRUE

If the statement is true put a plus (+) after it; if false put a minus (—).

1. We can make heat without fire.
2. We can add heat to a thing without making it hotter.
3. The boiling point of water is always 212° F.
4. Glass lets all the light through that strikes it.
5. We cannot always believe our own eyes.
6. Refraction is the turning aside of light by a mirror.
7. Sound travels in straight lines.
8. Sound can be reflected.
9. The pitch of a sound depends upon its loudness.
10. Our sense of hearing is in the brain.

COMPLETION

Fill in the proper word or words.

1. The two kinds of heat are and
2. When a thing is heated it
3. Heat travels either by or or
4. We study the stars through a and microbes through a
5. Light travels at a speed of miles per second.
6. A mirage is caused by light.
7. The band of colors in the rainbow is called a
8. In pronouncing sounds we are helped by our and
9. When light strikes a mirror, the angle of equals the angle of
10. The most wonderful of musical instruments is the

SELECTION

Each sentence talks about three things. Only *one* of the three is correct. Draw a line under the correct one.

1. The most common fuel is (gas; oil; coal).
2. The instrument that measures the amount of heat in a substance is called a (barometer; calorimeter; thermometer).
3. The hottest air in a room is (at the bottom; in the centre; at the top).

TESTS

4. (Iron; rubber; wood) is a good conductor of heat.
5. A light-year is (the distance light travels in a year; the time it takes light to travel from the sun; the time it takes light to travel to the nearest star).
6. If I stand five feet from a light and then stand ten feet from the light, its brightness will be (the same; one-half as great; one-fourth as great).
7. If a cannon is fired in the distance, I will (hear it before I see it; see it before I hear it; see and hear it at the same time).
8. (Air; steel; water) is the best conductor of sound.
9. We can hear best on a (clear and frosty night; foggy night; hot night).
10. When musical sounds interfere with each other we call that (harmony; melody; discord).

BIOLOGY, 9TH GRADE

Average Age, 14 to 15½

PART I

COURSE OF STUDY

QUESTIONS

Definition of Biology: The study of living things.

1. INTRODUCTION.

What is meant by *sensation* (11-4065-68), *motion* (13-4665-68), *respiration* (4-1325), *digestion* (6-2083-85), *absorption* (6-2086), *circulation* (4-1209-13), *assimilation*.

2. MATTER. (12-4155-59.)

Three states. (12-4157-58.)

Characteristics of common elements carbon, oxygen, hydrogen, nitrogen, water, carbon dioxide. (12-4289-92.)

Elements present in food compounds. (6-2185-87.)

Changes in matter (chemical and physical changes). (12-4403-06.)

Forms of energy. (13-4666-67; 15-5569-70.)

Conservation of energy. (13-4667; 15-5570.)

3. THE GREEN PLANT AS A LIVING THING. (1-329; 2-613-16.)

Photosynthesis. (2-616; 11-4094.)

4. PHYSICAL BASIS OF LIFE.

Protoplasm. (2-661-64.)

The cell.

What is meant by sensation? (11-4065-68.) Illustrate. What is the process of digestion? (6-2083-85.) Respiration? (4-1325.) Do all things move in space? (15-5517.) When we swing a rope why does it go on swinging? (10-3734.) Why does a falling object turn around? (13-4827.) Do we know any kind of matter not found on earth? (14-5084.) What are the three states of matter? (12-4157-58.) Name some conditions under which carbon is found. (2-664; 12-4406.) Exactly what do we mean when we say that oxygen is given off by green plants? (2-664.) What are nutrients? (2-613.) Illustrate. What is the difference between chemical and physical change in matter? (12-4403-06.) What are some of the commonest forms of energy? (13-4666-67; 15-5569-70.) Describe the process of photosynthesis. (2-616; 11-4094.) Illustrate. Why is new bread less digestible than old? (7-2486.) What is *protoplasm*? (2-663-64.) What is a *cell*? (2-661-63.) Illustrate. Why do we remember Robert Hooke in this connection? (13-4669.)

PART II

1. INSECTS. (17-6063-78; 18-6721-34.)

Study of

(a) The grasshopper.

(17-6068.)

(b) The butterfly.

(18-6525-32.)

Economic significance of the grasshopper, bee (17-6221-23), tussock moth, cotton boll weevil (8-2784; 18-6729.)

Methods of control. (18-6722-23; 11-4007.)

Relation of mosquitoes to malaria and yellow fever. (15-5488, 5490-91; 17-6417-18.)

Extermination.

Relation of the house fly to disease. (17-6420-21.)

Control.

2. CRUSTACEANS. (16-5947-50.)

Crayfish.

Why does our government make every effort to destroy the cotton boll weevil? (8-2784.) Give the life story of this insect. (18-6729.) Tell some of the measures used to combat it. (18-6722-23; 11-4007.) Describe the life of the bee and the division of labor in the hive. (17-6221-23.) How do bees aid agriculture? (18-6721-22.) Give the life history of the house fly. (17-6420-21.) What connection has he with disease? Give some other examples of diseases transmitted by insects. (15-5488, 5490; 17-6417-18.) What measures have been taken to control them? (17-6418; 18-6733; 15-5488-90.) Why is it important that the fly be controlled? Give an example of a crustacean. (16-5947-50.) How is the fish adapted for living in his environment? (15-5540-42.) How is the frog adapted for jumping, food-taking and swimming? (15-5453-56.) Why are birds valuable to the farmer? (8-2762;

COURSE OF STUDY

3. FISHES. (15-5540-42.)
Adaptation to environment.
4. FROG. (15-5453-56.)
Adaptation for jumping, swimming and food-taking.
5. BIRDS. (8-2757-62.)
Food-taking, drinking, locomotion.
Economic importance. (8-2762; 9-3288.)
6. MAMMALS. (1-258-59.)
Characteristics. (7-2591.)
Types of mammals—primates, carnivora, hoofed animals, gnawers.
7. ONE-CELLED ANIMALS.
Protozoans. (2-661-63.)
The amœba.

QUESTIONS

9-3288.) Which birds are harmful? What are some laws that have been passed for the protection of birds? (14-5018.) What are the chief characteristics of mammals? (7-2591.) Give at least two examples of each of the different types of mammals. What are protozoans? (2-661-63.)

PART III

1. GENERAL STRUCTURE OF THE HUMAN BODY. (13-4618-19; 5-1673-77; 5-1559-63.)
Skeleton.
Important organs.
Muscles. (5-1803-05.)
 2. RESPIRATION. (4-1325-31.)
Location, structure and functions of the lungs and air passages.
The cilia, action of ribs and diaphragm in breathing.
Good breathing habits. (15-5332.)
Uses and necessity of oxygen. (3-805-06.)
 3. NERVOUS SYSTEM. (8-2837-41.)
Principal parts of the nervous system:
Brain. (9-3059-62; 8-2682-83; 16-5957-58.)
Spinal cord (5-1562-63), and nerves.
Functions.
Effects of alcohol and narcotics on the nervous system. (8-2682-84.)
Drugs.
Care of the eyes (10-3683-86; 11-3801-04) and ears (9-3305-10.)
 4. FOODS. (6-2185-88.)
Minerals. Vitamins. (8-2802; 5-1624.)
Value of common foods as tissue formers, as fuel and body regulators. (7-2568-69; 7-2423-25; 10-3416.)
Meaning of calorie. (18-6694.)
Principles involved in cooking. (4-1450; 11-3842.)
Dangers in impure water and milk. (2-557-58; 7-2326.)
- Learn the general structure of the human body. (13-4618-19; 5-1559-63, 1673-77.) Name ten adaptations in the human skeleton. What is the thoracic region? What are extensor and flexor muscles? (5-1803-05.) What are the organs of respiration? (4-1325-31.) What is the pleura? Describe the movements and their results that go to make up the process of breathing. (4-1325-31.) What lessons are here for us in breathing habits? (15-5332.) Ventilation? Bathing? Why is oxygen necessary? (3-805-06.) What are the principal parts of the nervous system? (8-2837-41.) What are some of the effects of alcohol upon the nervous system? (8-2682-84.) Why should we be very careful what patent medicines we buy without a doctor's advice? Give some general rules for the care of the eyes. What are some symptoms that indicate that the eyes need attention? (10-3686.) What are vitamins? What foods give them to us? (8-2802; 5-1624.) What are the chief uses of food in maintaining a healthy body? (18-6694.) What is a calorie? (18-6694.) What dangers lurk in impure water and milk? (2-557-58; 7-2326.) Give specific examples of diseases that may be transmitted through these agencies. (3-934.) Describe the history of the teeth of a human being. (6-1929-31.) What is the relation of teeth to health? What is the function of saliva? (6-1932.) Where does digestion begin? (6-2083-86.) What necessary elements do the proteins contain? (6-2187.) Why are some fats necessary? (6-2085-86.) Give some general rules for diet. Is alcohol a food? (8-2682.) Is it a poison? (2-559.) Illustrate. What effect has alcohol upon digestion? (2-559.) What makes the heart beat?

COURSE OF STUDY

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5. **DIGESTION AND ABSORPTION.** (6-2083-86.)
 - Importance of teeth.
 - Description and care of teeth. (6-1929-31.)
 - Functions of saliva. (6-1932.)
 - Importance of thorough mastication of food. (6-2083-86.)
 - Digestion of proteins. (6-2085, 2187-88.)
 - Digestion of fats. (6-2085-86.)
 - Effects of alcohol and narcotics on digestion. (2-559; 3-937.)
6. **CIRCULATION AND ASSIMILATION.** (4-1209-13.)
 - Structure of blood. Corpuscles. (3-803-06, 935-36.)
 - The heart—shape, size, functions, position. (4-1209-13.)
 - Arteries. (4-1209, 1213; picture, 13-4619.)
 - Veins. (4-1209-15; picture, 5-1805.)
 - Capillaries. (4-1209, 1213.)
 - Changes in composition of blood as it passes through various organs of the body.
 - Effect of alcohol and narcotics on the organs of circulation. (3-937.)
 - Ductless glands. (9-3222-24.)
 - Thyroid and adrenal.
7. **WORK OF KIDNEYS** (4-1213), **LUNGS** (3-805-06), **INTESTINE** (6-2085), **SKIN** (4-1415-20)
 - Importance of bathing.
8. **BACTERIA.**
 - General characteristics. (2-437-39, 557-58.)
 - Growth. (2-438.)
 - Methods of killing. (3-935-36; 2-559.)
 - Discovery. (13-4670; 15-5483.)
9. **HEALTH.** (15-5482-85.)
 - How to preserve health.
 - How to resist disease. (15-5491-92.)
 - Cause of disease. (2-558-59.)
 - Natural and acquired immunity. (15-5492; 8-2728; 7-2485.)
 - Sanitation.
 - In the home and in the environment.

QUESTIONS

(5-1752.) Describe the structure of the blood. (3-803-06, 934-36.) What is its function? Where is the heart? (4-1209-13.) What is its size, shape, function? What is the pericardium? Trace the circulation of the blood in the human body. (4-1210-12.) What is the difference between arteries and veins? (13-4619.) What are capillaries? (4-1209.) What are the most important of the ductless glands? (9-3222-24.) Why are these important? How does the kidney do its work? (4-1213.) What is the function of the lungs? (3-805-06.) Explain the mechanics of breathing. Why is the pancreas considered the most important digestive gland? (6-2085-86.) Are bacteria always harmful? Explain your answer. (2-439, 557-59.) When and by whom was the relation between disease and bacteria discovered? (2-559.) What are the best methods of controlling the growth of bacteria? (15-5483-84; 3-935-96.) How does disease spread by infection? (8-2872.) Explain the difference between natural and acquired immunity against disease. (2-461; 7-2485.) Name some ways of acquiring immunity. (8-2728; 7-2485.) Why is sanitation the business of every good citizen?

PART IV

1. **THE LIVING PLANT.** (2-503-10, 613-16.)
 - General structure—leaves, stem (trunk), root, flower and fruit.
 - Leaves—cell—protoplasm, general structure, parts. (2-614-16.)
- Describe the structure of a simple leaf (of a dicotyledonous plant). (3-885.) Explain the meaning of chlorophyl. (6-2188; 2-615-16.) Sum up the work done by leaves for the plant. (2-614-16.) What is transpiration? (2-616.) What happens when a

COURSE OF STUDY

QUESTIONS

- Work of leaves. (2-614-16.)
- Carbohydrate manufacture, transpiration, assimilation, respiration.
- Necessity of light. (2-616.)
- Necessity of chlorophyll. (6-2188.)
- Transpiration (Liberation of water vapor from leaves).
- Necessity of respiration and assimilation in leaves.
- Economic uses of leaves. (2-616.)
- The algæ. (10-3721-22.)
- Stems. (2-506; 3-885.)
- Kinds, structure, functions, adaptations.
- Dicotyledons. (3-885.)
- Uses of stems to man.
- Roots. (2-612-14, 744-45.)
- Structure of the root system of a plant. (Root hair.) (2-614; picture, 504; 3-874.)
- Functions of roots.
- Nutrients stored in fleshy roots.
- Uses of roots to man. (7-2412; 5-1624.)

2. FLOWERS AND FRUITS.

- (3-1013-16; 2-506-10.)
- General structure of parts of flowers.
- Function of each part.
- Ovules—pollen.
- Pollination and fertilization. (5-1609; 15-5613.)
- Conservation of wild flowering plants.
- Types of fruits.
- Parts of the flower represented in fruits.
- Adaptations of fruits and seeds for dispersal. (3-1083-87.)
- Value of common fruits to man. (6-2187.)

3. FORESTS AND FOREST PRODUCTS.

- (8-2803-10.)
- Importance of forests. (7-2416; 11-4094-95; 8-2680.)
- Need of conservation. (8-2803-04.)

BIOLOGY AND PROGRESS

- Darwin. (2-593.)
- Pasteur. (15-5481; 2-559.)
- Koch. (15-5484; 2-559.)
- Audubon. (19-7052.)
- Harvey. (3-939; 4-1209.)
- Burbank. (4-1388-90.)

- leaf falls from a tree? (13-4595.)
- Why do leaves change color in autumn? (15-5520.)
- What plants are known as green algæ? (10-3721-22.)
- Where are they found? Where are yellow, brown and red algæ found? Describe the structure of a cross section of a dicotyledonous stem. (3-885.)
- What are the chief uses of stems to man? What are root hairs? (2-614; 3-874.)
- What is their function? What are the chief uses of roots to man? (7-2412; 5-1624.)
- Why do the roots of a tree grow downward? (3-878.)
- What are the parts of a flower? (3-1013-16.)
- What is pollen? (2-506, 509; 3-1014; picture, 2-500.)
- What part does it play? (2-506; 3-1013.)
- What responsibility have we toward the wild flowers? Describe the process of the formation of fruit. (2-510.)
- Make a drawing of the cross section of an apple. (2-507.)
- How are seeds dispersed? (2-510; 3-1083.)
- Why are forests so important? (7-2416.)
- What effect have they on streams? In preventing erosion? In forming and improving soil? (8-2680.)

- Tell something of the lives and services to humanity of Darwin (2-593), Pasteur (15-5481; 2-559), Koch (15-5484; 2-559), Audubon (19-7052), Harvey (3-939; 4-1209), Burbank (4-1388-90).

WEIGHTS AND MEASURES

TABLES FOR QUICK AND READY REFERENCE

The abbreviations commonly used are given with each weight or measure

| AVOIRDUPOIS WEIGHT | |
|--------------------|---------------------------|
| 16 drams, dr. | = 1 ounce, oz. |
| 16 ounces | = 1 pound, lb. |
| 14 pounds | = 1 stone, st. |
| | (English) |
| 28 pounds | = 1 quarter, qr. |
| 4 quarters | = 1 hundredweight, cwt. |
| 20 hundredweights | = 1 ton, t. |
| 100 pounds | = 1 cental, or short cwt. |
| 2000 pounds | = 1 short ton |
| 7000 grains | = 1 pound |

| TROY WEIGHT | |
|--------------------------|-----------------------|
| 3,1683 grains | = 1 carat |
| 24 grains, gr. | = 1 pennyweight, dwt. |
| 20 pennyweights | = 1 ounce, oz. |
| 12 ounces or 5760 grains | = 1 pound, lb. |

| APOTHECARY'S WEIGHT, DRY | |
|--------------------------|-------------|
| 20 grains, gr. | = 1 scruple |
| 3 scruples | = 1 dram |
| 8 drams | = 1 ounce |
| 12 ounces | = 1 pound |

| APOTHECARY'S MEASURE, LIQUID | |
|------------------------------|-----------------|
| 60 minims or drops | = 1 fluid dram |
| 8 fluid drams | = 1 fluid ounce |
| 20 fluid ounces | = 1 pint |
| 8 pints | = 1 gallon |

| LINEAR MEASURE | |
|-----------------|---|
| 12 inches, ins. | = 1 foot, ft. |
| 3 feet | = 1 yard, yd. |
| 5½ yards | = 1 rod, rd., pole, po., or perch, per. |
| 40 rods | = 1 furlong, fur. |
| 8 furlongs | = 1 mile, mi. |
| 3 miles | = 1 league |

| LAND MEASURE | |
|---------------------|----------------|
| 7.92 inches | = 1 link, li. |
| 25 links | = 1 rod, rd. |
| 4 rods or 100 links | = 1 chain, ch. |
| 80 chains | = 1 mile, mi. |

| SQUARE MEASURE | |
|----------------------------|--|
| 144 square inches, sq. in. | = 1 square foot, sq. ft. |
| 9 square feet | = 1 square yard, sq. yd. |
| 30¼ square yards | = 1 square rod, sq. rd., square pole, sq. po., or square perch, sq. per. |
| 40 square rods | = 1 rood, r. |
| 4 roods | = 1 acre, ac. |
| 640 acres | = 1 square mile, sq. mi. |

| LAND SQUARE MEASURE | |
|---------------------------|---------------------------|
| 625 square links, sq. li. | = 1 square rod, sq. rd. |
| 16 square rods | = 1 square chain, sq. ch. |
| 10 square chains | = 1 acre, ac. |
| 640 acres | = 1 square mile, sq. mi. |
| 36 square miles | = 1 township |
| (6 miles square) | |

| CUBIC OR SOLID MEASURE | |
|----------------------------|-------------------------|
| 1728 cubic inches, cu. in. | = 1 cubic foot, cu. ft. |
| 27 cubic feet | = 1 cubic yard, cu. yd. |
| 128 cubic feet | = 1 cord |

| LIQUID MEASURE | |
|-------------------------|-------------------|
| 4 gills, gill | = 1 pint, pt. |
| 2 pints | = 1 quart, qt. |
| 4 quarts | = 1 gallon, gal. |
| United States gallon | = 231 cu. in. |
| British Imperial gallon | = 277.274 cu. in. |

| DRY MEASURE | |
|----------------------|--------------------|
| 2 pints, pt. | = 1 quart, qt. |
| 4 quarts | = 1 gallon, gal. |
| 2 gallons | = 1 peck, pk. |
| 4 pecks | = 1 bushel, bu. |
| 8 bushels | = 1 quarter, qr. |
| United States bushel | = 2150.42 cu. in. |
| British bushel | = 2218.192 cu. in. |

| CIRCULAR MEASURE | |
|------------------|------------------------------|
| 60 seconds, " | = 1 minute, ' |
| 60 minutes | = 1 degree, ° |
| 30 degrees | = 1 sign, s. |
| 90 degrees | = 1 right angle, or quadrant |
| 180 degrees | = 1 semi-circle |
| 360 degrees | = 1 circle |

| MEASURES OF TIME | |
|---|----------------------|
| 60 seconds, sec. | = 1 minute, min. |
| 60 minutes | = 1 hour, hr. |
| 24 hours | = 1 day, dy. |
| 7 days | = 1 week, wk. |
| 2 weeks | = 1 fortnight |
| 4 weeks | = 1 lunar month, mo. |
| 365½ days or 52 weeks, or 12 calendar months or 13 lunar months | = 1 year |
| 366 days | = 1 leap year |
| 100 years | = 1 century |
| 1000 years | = 1 millennium |

| NAUTICAL MEASURES | |
|------------------------------------|-----------------------------|
| 6.08 feet | = 1 fathom, fa. |
| 100 fathoms | = 1 cable's length |
| 10 cable's lengths or 1000 fathoms | = 1 nautical mile |
| 60 nautical miles | = 1 degree |
| 360 degrees | = the earth's circumference |
| 1 knot (a measure of speed) | = 1 nautical mile per hour |

| UNITED STATES MONEY | |
|--|--|
| One-cent piece, made of copper, tin and zinc | |
| Five-cent piece, made of copper and nickel | |
| Ten-cent piece, made of silver | |
| Twenty-five-cent piece, made of silver | |
| Fifty-cent piece, made of silver | |
| Standard silver dollar, made of silver, worth one hundred cents | |
| Gold coins in pieces worth \$2.50, \$5, \$10 and \$20 | |
| Paper money includes certificates and notes of many denominations from \$1 to \$10,000 | |

| CANADIAN MONEY | |
|--|--|
| One-cent piece, bronze | |
| Two-cent piece, bronze | |
| Five-cent piece, nickel or silver | |
| Ten-cent piece, silver | |
| Twenty-five-cent piece, silver | |
| Fifty-cent piece, silver | |
| Gold coins—five-dollar and ten-dollar pieces, British sovereign (value \$4.86 2/3) | |
| Paper money and notes of the denominations of 25 cents, \$1, \$2, \$4, \$5, \$50, \$100, \$500 and \$1000. For the use of banks only, notes up to the value of \$50,000 are issued | |

| ENGLISH MONEY | |
|-------------------------|-------------------------|
| 4 farthing | = 1 penny |
| 12 pence | = 1 shilling |
| 20 shillings | = 1 pound, or sovereign |
| 2 shillings | = 1 florin |
| 3 shillings and 6 pence | = 1 half-crown |
| 21 shillings | = 1 guinea |

| OTHER FOREIGN MONEY (Normal value in dollars) | |
|---|-------------|
| This table shows the value of the standard coins of many countries: | |
| Franc (France, Belgium and Switzerland) | = \$0.1930 |
| Mark (Germany) | = \$0.2382 |
| Pound (English) | = \$4.8665 |
| Rouble (Russia) | = \$0.5146 |
| Krone (Austria) | = \$0.1407 |
| Rupee (India) | = \$0.2443 |
| Tael (China) | = \$0.8754 |
| Pound (Egypt) | = \$4.9451 |
| Pound (Turkish) | = \$4.40 |
| Yen (Japan) | = \$0.4985 |
| Milreis (Brazil) | = \$0.5462 |
| Krone (Scandinavian countries) | = \$0.2680 |
| Florin (Holland) | = \$0.402 |
| Peso (Mexico) | = \$0.4985 |
| Khran (Persia) | = \$0.9046 |
| Escudo (Portugal) | = \$1.0805 |
| Paper dollar (Argentina) | = \$0.9648 |
| Peseta (Spain) | = \$0.1930 |
| Lira (Italy) | = \$0.1930 |
| Leu (Rumania) | = \$0.1930 |
| Dinar (Jugoslavia) | = \$0.1930 |
| Drachma (Greece) | = \$0.1930 |
| Zloty (Poland) | = \$0.1930 |
| Peso (Chile) | = \$0.12165 |
| Gold Peso (Uruguay) | = \$1.0342 |
| Pound (Brazil) | = \$4.8665 |
| Krone (Hungary) | = \$0.203 |
| Finmark (Finland) | = \$0.0251 |

| POUNDS IN A BUSHEL OF VARIOUS COMMODITIES | |
|---|----|
| Beans | 60 |
| Buckwheat | 48 |
| Clover seed | 60 |
| Peas | 60 |
| Corn | 56 |
| Wheat | 60 |
| Hempseed | 44 |
| Potatoes | 60 |
| Barley | 48 |
| Rye | 56 |
| Carrots | 50 |

WEIGHTS AND MEASURES

POUNDS IN A CUBIC FOOT OF TIMBER

| | |
|-------------|-------|
| Alder | 26-42 |
| Ash | 40-53 |
| Beech | 43-56 |
| Birch | 32-48 |
| Elm | 34-37 |
| White Fir | 22-31 |
| Hazel | 37-49 |
| Lime | 20-37 |
| Maple | 37-47 |
| Oak | 37-56 |
| Poplar | 22-31 |
| Sycamore | 24-37 |
| Willow | 24-37 |
| Apple | 41-52 |
| Bamboo | 19-25 |
| Cedar | 30-35 |
| Hickory | 37-58 |
| Juniper | 35 |
| Walnut | 40-43 |
| Pear | 38-45 |
| Plum | 41-49 |
| Lignum Vitæ | 73-83 |
| Dogwood | 47 |
| Cherry | 43-56 |
| Box | 59-72 |

ROMAN NUMERALS

| | |
|------------|--------------|
| I = 1 | XL = 40 |
| II = 2 | L = 50 |
| III = 3 | LX = 60 |
| IV = 4 | LXX = 70 |
| V = 5 | LXXX = 80 |
| VI = 6 | XC = 90 |
| VII = 7 | C = 100 |
| VIII = 8 | CC = 200 |
| IX = 9 | CCC = 300 |
| X = 10 | CD = 400 |
| XI = 11 | D = 500 |
| XII = 12 | DC = 600 |
| XIII = 13 | DCC = 700 |
| XIV = 14 | M = 1000 |
| XV = 15 | MC = 1100 |
| XVI = 16 | MD = 1500 |
| XVII = 17 | MM = 2000 |
| XVIII = 18 | V̄ = 5000 |
| XIX = 19 | VĪ = 6000 |
| XX = 20 | X̄ = 10,000 |
| XXX = 30 | C̄ = 100,000 |

THE METRIC SYSTEM

MEASURES OF WEIGHT

| | |
|----------------|--------------------|
| 10 milligrams, | = 1 centigram, |
| ms. | cg. |
| 10 centigrams | = 1 decigram, dg. |
| 10 decigrams | = 1 gram, g. |
| 10 grams | = 1 decagram, Dg. |
| 10 decagrams | = 1 hectogram, Hg. |
| 10 hectograms | = 1 kilogram, Kg. |
| 10 kilograms | = 1 myriagram, Mg. |
| 10 myriagrams | = 1 quintal, Ql. |
| 10 quintals | = 1 ton, T. |

LINEAR MEASURE

| | |
|-----------------|---------------------|
| 10 millimetres, | = 1 centimetre, cm. |
| mm. | |
| 10 centimetres | = 1 decimetre, dm. |
| 10 decimetres | = 1 metre, m. |
| 10 metres | = 1 decametre, Dm. |
| 10 decametres | = 1 hectometre, Hm. |
| 10 hectometres | = 1 kilometre, Km. |
| 10 kilometres | = 1 myriametre, Mm. |

SQUARE MEASURE

| | |
|-----------------------------------|--|
| 100 square millimetres, sq. mm. | = 1 square centimetre, sq. cm. |
| 100 square centimetres | = 1 square decimetre, sq. dm. |
| 100 square decimetres | = 1 square metre or 1 centiare, sq. m. or ca. |
| 100 square metres (centiares) | = 1 square decametre or 1 are, sq. Dm. or a. |
| 100 square decametres (ares) | = 1 square hectometre or 1 hectare, sq. Hm. or Ha. |
| 100 square hectometres (hectares) | = 1 square kilometre, sq. Km. |

CUBIC MEASURE

| | |
|---------------------------------|-------------------------------|
| 1000 cubic millimetres, cu. mm. | = 1 cubic centimetre, cu. cm. |
| 1000 cubic centimetres | = 1 cubic decimetre, cu. dm. |
| 1000 cubic decimetres | = 1 cubic metre, cu. m. |

MEASURE OF CAPACITY

| | |
|---------------------|---------------------|
| 10 millilitres, ml. | = 1 centilitre, cl. |
| 10 centilitres | = 1 decilitre, dl. |
| 10 decilitres | = 1 litre, l. |
| 10 litres | = 1 decolitre, Dl. |
| 10 decolitres | = 1 hectolitre, Hl. |
| 10 hectolitres | = 1 kilolitre, Kl. |
| 10 kilolitres | = 1 myrialitre, Ml. |

THERMOMETERS

COMPARATIVE SCALES

| Reau- mur | Centi- grade | Fahren- heit | |
|--------------|-----------------|-----------------|---------------------------------|
| 80° | 100° | 212° | WATER BOILS AT SEA- LEVEL |
| 76 | 95 | 203 | |
| 72 | 90 | 194 | |
| 68 | 85 | 185 | Alcohol Boils |
| 63.1 | 78.9 | 174 | |
| 60 | 75 | 167 | |
| 56 | 70 | 158 | Tallow Melts |
| 52 | 65 | 149 | |
| 48 | 60 | 140 | |
| 44 | 55 | 131 | Blood Heat |
| 42.2 | 52.8 | 127 | |
| 40 | 50 | 122 | |
| 36 | 45 | 113 | Temperate |
| 33.8 | 42.2 | 108 | |
| 32 | 40 | 104 | |
| 29.3 | 36.7 | 98 | WATER FREEZES |
| 28 | 35 | 95 | |
| 25.8 | 32.2 | 90 | |
| 24 | 30 | 86 | ZERO FAHREN- HEIT |
| 21.3 | 26.7 | 80 | |
| 20 | 25 | 77 | |
| 16 | 20 | 68 | MERCURY FREEZES |
| 12.4 | 15.3 | 60 | |
| 10.2 | 12.8 | 55 | |
| 8 | 10 | 50 | |
| 5.8 | 7.2 | 45 | |
| 4 | 5 | 41 | |
| 1.3 | 1.7 | 35 | |
| 0 | 0 | 32 | |
| -0.9 | -1.1 | 30 | |
| -4 | -5 | 23 | |
| -5.3 | -6.7 | 20 | |
| -8 | -10 | 14 | |
| -9.8 | -12.2 | 10 | |
| -12 | -15 | 5 | |
| -14.2 | -17.8 | 0 | |
| -16 | -20 | -4 | |
| -20 | -25 | -13 | |
| -24 | -30 | -22 | |
| -28 | -35 | -31 | |
| -32 | -40 | -40 | |

UNITS OF MEASUREMENT

| | |
|------------------|---|
| 1 horse power | = the force required to raise 33,000 pounds one foot in one minute |
| 1 foot pound | = the energy required to raise one pound a height of one foot |
| 1 dyne | = the force which acting on one gram for one second generates a velocity of one centimetre a second |
| 1 erg | = the amount of work done by one dyne acting through one centimetre |
| 1 poundal | = the force which acting for one second upon one pound gives it a velocity of one foot per second. It is equal to 13,825.5 dynes |
| 1 atmosphere | = the pressure of 14.7 pounds per square inch equal to 34 feet of water or 29.92 inches of mercury |
| The thermal unit | = the quantity of heat required to increase the temperature of one gram of water by one degree centigrade when it is at its maximum density |

The unit of pressure = one pound acting on a surface of one square inch

1 candle-power = the light given by one spermaceti candle, 7/8 inch in diameter and 1/6 pound in weight burning at the rate of 120 grains per hour

1 calorie = the quantity of heat required to raise the temperature of 1 kilogram of water 1 degree centigrade at, or near, 4 degrees centigrade

1 joule = 10,000,000 ergs

1 light year = 5,876,068,880,000 miles

In astronomy 1 unit of length = the mean radius of the earth's orbit, 92,900,000 miles

A micron = the millionth part of a metre

The gauss is a unit used to measure the intensity of a magnetic field

UNITS OF ELECTRICITY

1 volt = the unit for measuring pressure or electro-motive force, and is the electrical pressure which, if steadily applied to a conductor whose resistance is one ohm, will produce a current of one ampère

1 ohm = the unit for measuring resistance, and is the resistance offered to a current by a column of mercury at the temperature of melting ice, the mass being 14.45 grams, the height of the column 106.3 centimetres, and the section one square millimetre

1 ampère = the unit for measuring current, and is the current one volt will drive through one ohm

1 coulomb = the unit for measuring quantity, and is equal to one ampère flowing for one second

1 microfarad = the unit for measuring capacity. It is the millionth part of a farad and is equal to the capacity of about three miles of an ocean cable

1 watt = the unit for measuring power, and is equal to a current of one ampère at a pressure of one volt

1 joule = the work done in one second in maintaining a current of one ampère against a resistance of one ohm

1 farad = the capacity of a condenser charged to one volt by one coulomb

1 watt-hour = the energy obtained by maintaining a power of one watt for one hour

1 kilowatt-hour = 1000 watts acting for one hour

QUICK WAYS OF RECKONING

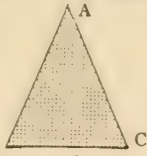
Rough and ready ways of changing one measure or weight into another so as to give approximate results

To turn
metres into feet multiply by 3½
feet into metres multiply by 3 and divide by 10
metres into yards add one-tenth yards into metres deduct one-tenth kilometres into miles multiply by 3 and divide by 5
miles into kilometres add three-fifths of the number
square metres into square yards add one-fifth
square yards into square metres deduct one-fifth
square kilometres into square miles multiply by 2 and divide by 5
square miles into square kilometres multiply by 2½
cubic metres into cubic yards add one-third
cubic yards into cubic metres deduct one-third
kilograms into pounds (avoid dupois) add a tenth and multiply by 2
pounds into kilograms deduct a tenth and divide by 2
litres into pints add three-quarters
pints into litres multiply by 3 and divide by 5

THE QUICKEST WAY OF FINDING THINGS

The Area of a Triangle

The area of a triangle is equal to the base multiplied by half the perpendicular height; or if we know the length of the three sides AB, BC, CA, and half their sum is represented by S, we can find the area by using the formula $S(S-AB)(S-BC)(S-CA)$, and by taking the square root of the result.



The Area of an Equilateral Triangle

The area of an equilateral triangle can be found by multiplying the square of the length of one side by .433.

If we have the Length of Two Sides of a Right-angled Triangle, how can we find the Third Side?

If we have the base and perpendicular we should square each of these, add the results together, and take the square root of the sum; that will give us the length of the hypotenuse, or side opposite the right angle. If we have the length of the hypotenuse and one other side, we should square them both, subtract the smaller number from the larger, and take the square root of the result. That will be the third side.



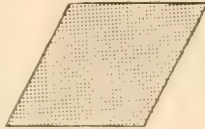
The Area of a Parallelogram

To find the area of a parallelogram, we have to multiply the base by the perpendicular height.



The Area of a Rhombus or Square

In addition to the last-mentioned method we may multiply the two diagonals together and divide the result by two.



The Area of a Trapezoid

A trapezoid is a four-sided figure having two of its sides parallel, and we find the area by taking half the sum of the two parallel sides and multiplying by the perpendicular distance between them. The result is the area.



The Area of a Trapezium

A trapezium is a four-sided figure of which no two sides are parallel. We find its area by multiplying the longest diagonal by half the sum of the two perpendiculars falling on it from the opposite angles. Another method of finding the area of any figure of four or more unequal straight sides is to divide it into triangles and find the area of each, adding these together for the result.



The Area of a Hexagon, Octagon, or any Regular-sided Figure

Take half the radius of the inscribed circle (that is, the circle drawn *inside* the figure and touching all its sides), multiply this by the length of one side, and then multiply the result by the number of the sides.



The Circumference of a Circle

Multiply the diameter of the circle by 3.1416, or, more roughly, by $3\frac{1}{7}$.

The Diameter of a Circle

If we have the length of the radius we multiply that by two to find the diameter of a circle; if we have the length of the circumference we multiply that by .31831.

The Area of a Circle

There are many ways of finding the area of a circle. We may multiply half the radius by the circumference; or we may square the radius and multiply by 3.1416; or we may square the diameter and multiply by .7854; or we may square the circumference and divide by 3.1416 multiplied by four; or we may square the circumference and multiply by .07958; or we may find the area of a triangle having a base equal to the circumference and a height equal to the radius.



The Circumference of an Ellipse

Take half the sum of the long and short diameters and multiply by 3.1416. The answer gives the circumference.

The Area of an Ellipse

Take the long diameter, multiply it by the short diameter, and multiply the result by .7854.



The Length of the Arc of a Circle

The simplest way to find this is to subtract the chord of the whole arc from eight times the chord of half the arc, and divide the remainder by three.



The Area of the Sector of a Circle

Multiply the length of the arc by one-half the radius and the result is the area of the sector.



The Area of the Segment of a Circle

We find the area of a sector having the same arc by the method given in the last paragraph, and then subtract from the result the area of the triangle formed by the radii and the chord.



The Area of the Surface of a Sphere

This is found by squaring the diameter and multiplying by 3.1416; or by multiplying the diameter by the circumference.



The Cubic Contents of a Sphere

To find this we must cube the diameter and multiply by .5236; or we take the area of the surface and then multiply it by one-third of the radius.

The Area of the Surface of a Cylinder

Add the areas of the two ends to the result of the circumference of one end multiplied by the length. This will give the area of the surface.



The Cubic Contents of a Cylinder

Multiply the area of one end by the length of the cylinder.

THE QUICKEST WAY OF FINDING THINGS

The Area of the Surface of a Prism

To find this add the areas of the two ends to the perimeter, or distance round one end multiplied by the length.

The Cubic Contents of a Prism

Multiply the area of one end by the length of the prism and the result is the cubic contents.

The Cubic Contents of a Prismoid

A prismoid is a body that the form of a prism without being actually a prism; that is, its sides are not parallelograms. To find its contents we proceed thus: to the sum of the area of the two ends we add four times the middle area and multiply the sum by one-sixth the height.

The Area of the Surface of a Cone

To find this multiply the slant height by the circumference of the base, and divide the result by two. Then to the result add the area of the base.

The Cubic Contents of a Cone

To find this multiply one-third of the perpendicular by the area of the base.

The Area of the Surface of a Pyramid

Multiply the slant height by the perimeter of the base, divide by two, and add the area of the base. The result will give the area of the surface.

The Cubic Contents of a Pyramid

Multiply one-third of the perpendicular height by the area of the base to find the cubic contents.

The Length of a Ring

There are various ways of finding the length of a ring. We may multiply the sum of the radii of the outer and inner boundaries by 3.1416; or we may take half the sum of the outer and inner boundaries; or we may subtract the circumference of the cross section from the outer boundary; or we may add the inner boundary to the circumference of the cross section.

The Area of the Surface of a Plane Ring

The surface of a plane ring is the space between two concentric circles, and its area is found by adding the two radii together, multiplying by their difference, and then multiplying the result by 3.1416.

The Area of the Surface of a Solid Ring

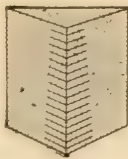
Multiply the circumference of the circular section of the ring by the length of the ring, and the result is the area of the surface.

The Cubic Contents of a Ring

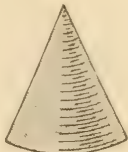
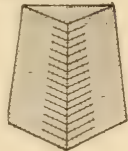
To find this multiply the area of the cross section by the length of the ring.

The Cubic Contents of a Spherical Shell

This means the space occupied by the actual material of a hollow ball, and we find it by subtracting the cube of the inner



approaches to



diameter from the cube of the outer diameter and multiplying the result by .5236.

The Cubic Contents of the Zone of a Sphere

The zone of a sphere is the part included between two parallel planes, and its contents are found by squaring the radius of the base, multiplying the result by three, then adding that result to the square of the height, and multiplying the whole by .5236 of the height.



The Cubic Contents of the Segment of a Sphere

The segment of a sphere is the part cut off by a single plane, and its contents are found by squaring the radius of the base, multiplying the result by three, then adding that result to the square of the height, and multiplying the whole by .5236 of the height.



The Area of the Surface of a Frustum

A frustum is the part of a solid figure next to the base left after cutting off the top part by a plane parallel to the base. The area of its surface is found by multiplying the slant height by the perimeter of the two ends added together, dividing by two, and then adding to the result the areas of both ends.

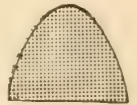


The Cubic Contents of a Frustum

To the area of the two ends add the square root of their product and multiply by one-third of the height to find the cubic contents.

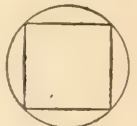
The Area of a Parabola

A parabola is formed when we intersect or cut a cone with a plane parallel with its side. The area of the surface thus exposed is found by multiplying the base by two-thirds the height.



The Length of the Side of a Square Inscribed in a Circle

Multiply the diameter of the circle by .707 and the result gives the side of the inscribed square.

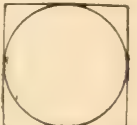


The Diameter of a Circle Circumscribing a Square

Multiply the side of the square by 1.414.

The Length of the Side of a Square Circumscribing a Circle

This square of course has a side exactly equal to the diameter of the circle that it circumscribes, or fits round.



The Length of the Side of a Square Equal in Area to a Circle

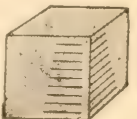
Multiply the diameter of the circle by .8862.

The Diameter of a Circle Equal in Area to a Square

Multiply the side of the square by 1.1284.

The Cubic Contents of a Cube

Multiply the length by the breadth and the result by the height; in other words, cube the side, and the result is the volume or cubic contents.



THE following pages give a key to the illustrations in the Book of Knowledge relating to the Fine Arts of Painting, Sculpture, and Architecture. They have been compiled to help scholars and parents, as well as teachers, to readily find, profit by and enjoy in the simplest and most complete way the sight of art treasures in actual pictures to see which themselves would require years and thousands of miles of travel, and we all know how many, many words a good picture saves. Suppose, for instance, one wanted to understand the difference between the Gothic and Roman orders of architecture. In the pages devoted to architecture (by Ralph Adams Cram), under the appropriate head, will be found listed illustrations showing the best examples of each in various lands that visually answer the question clearly. Or discussion arises as to the costumes worn in Georgian times. A glimpse at the list of paintings by Gainsborough and Sir Joshua Reynolds would put the inquirers quite completely in possession of the facts. What did Oliver Wendell Holmes look like? What are the characteristics of Colonial architecture, and the best examples in America? What was the influence on subsequent art of the paintings of El Greco? And so on. These few examples will show you the infinite variety of games and profitable study to be suggested by consulting this convenient and instructive index at home or at school.

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